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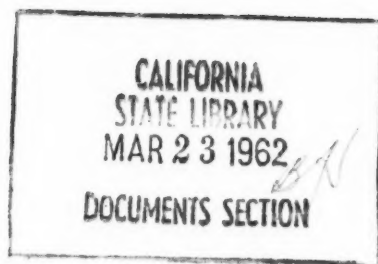
HEARING OF THE SUBCOMMITTEE
ON
AIR POLLUTION AND RADIATION PROTECTION [one]
OF THE
ASSEMBLY INTERIM COMMITTEE ON PUBLIC HEALTH
W. BYRON RUMFORD, CHAIRMAN

November 7, 1961
Room 1195, State Building Annex
455 Golden Gate Avenue, San Francisco,

SUBJECTS:

REGULATION AND LICENSING OF X-RAY
EQUIPMENT USED IN PROFESSIONAL
OFFICES [and]

PROGRESS OF PUBLIC AGENCIES GIVEN
THE RESPONSIBILITY IN THE FIELD
OF FALLOUT SHELTERS



Howard J. Thelin, Subcommittee Chairman
Ronald B. Cameron
Milton Marks
W. Byron Rumford
Chet Wolfrum

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SUBCOMMITTEE ON AIR POLLUTION AND RADIATION PROTECTION

Hearing held 10:00 a.m., Tuesday, November 7, 1961
Room 1194, State Building Annex
San Francisco.

CHAIRMAN THELIN: This meeting will please come to order. This is a regularly and duly constituted meeting of the Subcommittee on Air Pollution and Radiation Protection of the Assembly Public Health Committee. I am the Chairman of the Committee. My name is Howard Thelin, and my home is in Glendale, Los Angeles County.

We have with us today Assemblyman Byron Rumford, Chairman of the Public Health Committee, the parent committee; Assemblyman Chet Wolfrum, from Los Angeles; and Assemblyman Milton Marks from San Francisco. We have with us also our staff, Mrs. Vivian Nance, secretary of the Public Health Committee; Gene Poschman, Legislative Intern and Tommy Guillino, our Sergeant-at-Arms.

Today, the Subcommittee on Air Pollution and Radiation Protection has before it two items for consideration. 1) A hearing of a report on the status of proposed regulations relating to the regulation and licensing of x-ray equipment used in professional offices, and 2) testimony regarding the role of the State in the building of fallout shelters and the progress made by public agencies charged with responsibility in this field.

This morning we will take up the topic of the regulation of x-ray equipment. The committee is specifically interested in the proposed regulations drafted by the State Department of Public Health and the reaction to these regulations by those in the medical and dental professions.

AB 1975, enacted into law by the Legislature in 1961, endeavored to set up a uniform pattern for radiation control throughout California. To some extent, this would involve inspecting x-ray machines and other devices producing radiation. This was included in the bill as introduced, and during public hearings on the legislation, it developed that there was some opposition from the dental profession. This opposition was withdrawn on the understanding that the matter would be reviewed by an interim committee for the consideration of possible amendments before the new law became effective.

It is hoped this morning that the committee may be informed as to the present attitude of the professional groups affected towards the new law in view of the proposed regulations drafted by the State Department of Public Health.

With that introduction, we will proceed to call our witnesses. The first one we have on the agenda is Dr. John M. Heslep. Dr. Heslep, would you come forward, please? Would you please state your name and your affiliation and office, please.

DR. JOHN M. HESLEP: Mr. Chairman, and members of the committee, my name is John M. Heslep, Acting Chief, Bureau of Radiological Health, State Department of Public Health. I have a prepared statement, which has been furnished to the committee, which I will read:

In adopting the Atomic Energy Development and Radiation Protection Law, the California Legislature in 1959 declared it to be the policy of this State to "Encourage the constructive development of industries producing or utilizing atomic energy and radiation and to eliminate unnecessary exposure of the public to ionizing radiation".

The Radiation Control Law, adopted in 1961, contains the following statement. "It is the policy of the State of California, in furtherance of its responsibility to protect the public health and safety, to institute and maintain a regulatory program for sources of ionizing radiation so as to provide for: (a) Compatability with the standards and regulatory programs of the Federal government, (b) an integrated effective system of regulation within the State, and (c) a system consonant insofar as possible with those of other states."

A brief description of the history of the Radiation Control Law might be helpful. Since the advent of the atomic energy program in the 1940's, most radioactive materials have been controlled for purposes of health and safety by the Federal government through the Atomic Energy Commission. This has been an exception to the traditional pattern whereby health and safety are matters for regulation by the states. This was recognized by the Congress in 1959 with the passage of an amendment to the Atomic Energy Act providing for the transfer of a considerable portion of the Federal regulatory authority to states, on a negotiated basis, state by state. In order to assume such authority, a state must request the transfer and must demonstrate a program which is adequate to protect health and safety, and is compatible with the Federal program.

In the meantime, for several years there has been a growing awareness that ionizing radiation represents a true and real public health problem. The principal, although by no means only, concern is related to genetic effects of radiation. With regard to genetic effects, radiation exposure to large numbers in the population is most important. Use of medical and dental X-rays accounts for an estimated 95 or more percent of population exposure to man-made

radiation and is distributed widely throughout the population.

Upon careful consideration of this problem, we reached the following conclusions:

1. Radiation is an extremely important tool for use in medicine, research and industry. If judiciously used and properly controlled, its benefits far outweigh attendant health hazards.
2. It would be highly desirable for California to assume the proffered regulatory responsibility for radioactive materials.
3. It is not logical from the standpoint of public health to leave unregulated those sources which contribute most to population radiation exposure.
4. Legislation should be proposed which would provide for regulating all radiation sources within the State's jurisdiction in one comprehensive and rational program.

We cooperated with the Coordinator of Atomic Energy Development and Radiation Protection, with the Departmental Coordinating Committee on Atomic Energy Development and Radiation Protection, and with the Advisory Council on Atomic Energy Development and Radiation Protection in drafting the legislation. It was based on a model statute prepared by the Council of State Governments with assistance from the Atomic Energy Commission, the U.S. Public Health Service and others. The legislation known as the Radiation Control Law was adopted this year.

Upon adoption by the legislature, we began drafting regulations to implement the statute. The State Board of Public Health appointed an Advisory Committee composed of twelve persons representing affected

interests to assist in drafting the regulations. The Committee includes representation from medicine, medical radiology, dentistry, medical physics, industry, labor, and local health departments. The representatives of medicine were formal nominees of the California Medical Association, of medical radiology nominees of the Pacific Roentgen Society, and of dentistry nominees of the California State Dental Association and of the Southern California State Dental Association.

We prepared a first draft of regulations based on models suggested by the Atomic Energy Commission and on recommendations of the National Committee on Radiation Protection. We considered these in detail with the Advisory Committee. Based on suggestions from the Advisory Committee and others, changes were made and another draft of the regulations was prepared. This draft was mailed to some 500 representative persons and industries that would be affected. There was included an announcement of two public meetings at which comment on the proposed regulations was invited. These meetings were also publicized through news releases. An all-day meeting was held in Los Angeles on October 17, and one in Berkeley on October 20. At each of these meetings, the proposed regulations were discussed in full and in detail. Written comments were invited and these have been given full consideration. Subsequently, a meeting of the Advisory Committee was held to consider changes that were suggested at the public meetings. A final draft of the regulations is being prepared and is scheduled for consideration at a public hearing before the State Board of Public Health on December 8.

As noted earlier, these regulations are based on standards which are nationally accepted. We believe that we have done a conscientious job in seeking the views of interested and affected persons and in resolving differences wherever possible. Many suggestions for changes have been accepted. In cases where suggested changes have not been accepted, we have attempted to point out the reasons. In brief, we feel that we have a good and workable set of regulations which are in the overall best interests of radiation users and of the public.

There have been some misconceptions about this law and these regulations as they apply to medical and dental X-ray which I should like to clarify.

It has been stated that X-ray machines will be licensed. It is more correct to say regulated. My dictionary defines license as: "A document issued by the proper authorities granting permission to do something that would otherwise be contrary to law". No such document or permission is required for X-ray machines. Such machines are required to be registered and to conform to certain standards, but not to be licensed.

It has been stated or implied that the practice of medicine and dentistry will be hampered. This is not correct. We are fully cognizant of the enormous benefits of X-rays in medicine and dentistry. There is nothing in the law or in the regulations, and we would have no intent of using these regulations to interfere with the judgment of a practitioner as to when and under what clinical circumstances to employ X-ray procedure. The intent of the regulations is clear;

namely that after a clinical judgment has been made to use X-rays, the radiation exposure to all involved - patient, operator, and bystander - is kept to the minimum consistent with the needs of the procedure. In short, the aim is to eliminate unnecessary radiation exposure.

It is our sincere belief that this program will be of significant benefit to the medical and dental professions. It has been our experience that many practitioners are not as well informed about radiation protection measures as should be. We believe that the interests of public health can best be served in this case by working with the professions to upgrade standards where this is indicated. This will lead to reductions in unnecessary radiation exposure and should lead to an increase in public confidence that they are being afforded maximum and adequate protection.

We cannot fail to note that some insist that radiation protection practices are universally adequate and that there is no problem. I would here refer you to the reprint from the New York Times of May 15, 1961 bearing on this subject, which I understand that you have been furnished. I would note further that our observations and registration information indicate that the situation in California is not materially different than that described in the article for New York City; namely, that radiation protection practices are not universally adequate.

Others maintain that this problem should be attacked solely on the basis of education within the professions. We agree that any program should include a strong component of education and we intend to incorporate such in our program. We maintain, however, that education

is not sufficient. The professional literature during the past ten years has been replete with accounts of the needs for radiation protection in medical and dental practice, together with details as to how such protection can be achieved. All available indications point to the conclusion that this has not been generally successful.

The great bulk of informed opinion holds that any exposure to radiation involves some risk of harm. The harm may appear only a long time after exposure, indeed in some cases only in succeeding generations of the offspring of exposed individuals. We owe it to our people and to their offspring to provide reasonable protection without reducing the undeniable benefits of X-rays used in the healing arts. The letter and spirit of our program is directed toward this end.

That's the end of my statement.

CHAIRMAN THELIN: Thank you very much, Doctor. I wonder, could you spell out in a little more detail for us how the law and the regulations which have been proposed would affect the medical or dental practitioner in the use of the x-ray machine in his office?

DR. HESLEP: I'll be very happy to do so. These regulations are based on, as I indicated, nationally accepted standards with respect to equipment, facilities and techniques that have been found and determined by expert judgment and research to provide maximum protection against unnecessary radiation exposure. As I indicate, also, there must be a component of education here because, no matter how detailed or how good a set of regulations are, in the final analysis it is the procedure and technique carried out by the practitioner which is important; and so I would like to stress that

we look upon our program as essentially an educational program of working with the profession to help them upgrade their standards.

CHAIRMAN THELIN: Well, do you envision checking the ability of the doctor or the operator of the X-ray machine, or anything of that nature? How would this work?

DR. HESLEP: Mr. Thelin, not to decide upon their competence. Certainly, as far as the practitioner is concerned, this is covered by the Professional Practices Act, and we certainly would not have any desire to get into that phase of it. Now, again, a point that I stressed was that we have no intent or desire of interfering with the professional judgment. What we're talking about really here are some physical engineering factors that influence the amount of radiation exposure in a procedure, and our intent is to make these factors as favorable as possible from this standpoint.

CHAIRMAN THELIN: Well, what would be involved relative to inspection of these machines? Who will do it and how often, etc.?

DR. HESLEP: The intent is that these inspections will be carried on by public agency personnel, either from our own department -- State Department of Public Health -- or, as is provided in the law, by participating local health departments. These inspections will include checking of equipment and facilities to see that they are adequate to meet the minimum standards. Again, in our view, we would prefer not to call this an inspection, actually, because our hope is that the greatest purpose that can be accomplished by our people as they enter a practitioner's office is to point out to him some of the operational problems with respect to controlling unnecessary exposure and attempting to convince him by rational argument

that they should do certain things in certain ways to provide this protection. It also might be pointed out that these techniques are pretty well known, they are easy to apply, and there is no appreciable expense involved. It is a question of getting the people to do the right thing, essentially with what they have.

CHAIRMAN THELIN: Now, if inspection shows something to be inadequate or something being done incorrectly, what happens then?

DR. HESLEP: We attempt to do whatever we can to persuade the individual practitioner to correct the situation. We're not naive enough to think that we can go around with a legal club and try and get people in this category to provide these corrections. We will do everything we possibly can to persuade them of the desirability and the necessity from their own standpoint, as well as protection of their patients. Certainly, only in a very last resort of negligence and wilful failure to carry out these things, would we even think of taking any kind of legal action.

CHAIRMAN THELIN: Well, what kind of legal club do we really have if we have to use it?

DR. HESLEP: Well, the law provides that violations of the law or regulation constitute a misdemeanor. I am not an attorney and I am not sure just what the legal processing would have to be gone through here.

CHAIRMAN THELIN: It could be a crime.

DR. HESLEP: Well, according to the law, that's correct.

CHAIRMAN THELIN: Do any of the other members of the committee have any questions? Mr. Rumford?

ASSEMBLYMAN RUMFORD: You say that your regulations are

prepared?

DR. HESLEP: They are prepared, yes, sir.

ASSEMBLYMAN RUMFORD: Isn't it the course of action that you hold a public meeting before adopting them?

DR. HESLEP: That is correct, sir; The State Board of Public Health.

ASSEMBLYMAN RUMFORD: And, you haven't done that yet?

DR. HESLEP: It hasn't been done yet.

ASSEMBLYMAN RUMFORD: I'd like to know if this committee could get a copy of the regulations, so we would know.

DR. HESLEP: Certainly, yes.

ASSEMBLYMAN RUMFORD: Now, you mentioned in your conclusion -- in number four -- that legislation should be proposed providing state acceptance of federal regulatory authority. What is your specific recommendation?

DR. HESLEP: This is a historical statement, Mr. Rumford. I was pointing out here the history of the radiation control law. This was legislation which was proposed and was enacted.

ASSEMBLYMAN RUMFORD: In other words, that legislation which was enacted is sufficient?

DR. HESLEP: Yes. That is correct.

ASSEMBLYMAN RUMFORD: I see. You're just repeating. Now, you mentioned that the machines are required to be registered, but not licensed.

DR. HESLEP: That's correct.

ASSEMBLYMAN RUMFORD: Well, explain exactly what you mean.

DR. HESLEP: I am going to refer, again, to the definition of

a license. A license is something that requires an application to be able to do something which would be unlawful to do without this approval. This is not the case with x-ray machines. One does not have to apply to be able to use such a machine. One only has to register or denote to the Department the fact that they have such a machine.

ASSEMBLYMAN RUMFORD: Does he have to register the machine?

DR. HESLEP: He has to register the machine, but he doesn't have to secure our approval to use it. This is a distinction between the license and registration.

ASSEMBLYMAN RUMFORD: Does he secure any kind of a certification for having registered his machine?

DR. HESLEP: He receives a notification and a registration number -- notification that his registration has been received, and denoting a registration number of identification purposes.

ASSEMBLYMAN RUMFORD: Does he pay a fee?

DR. HESLEP: He will pay -- under these regulations and law he would pay a fee of \$5.00 a year per machine.

ASSEMBLYMAN RUMFORD: Can any action be taken against the machine if it is not in order? This is a duplication of what I think Mr. Thelin asked. I'm trying to follow this reasoning out of the registration and licensing.

DR. HESLEP: The registration is one aspect, and the other aspect to the regulation would promulgate a set of standards that the equipment and machine must meet. If the equipment and machine do not meet the standards, then, I say, our course of action would be to point out to these people -- anyone in this category -- what the

regulations say and attempt to persuade them, on their own volition, to make such corrections as seem necessary. There is a misdemeanor clause in the law that could be utilized.

ASSEMBLYMAN RUMFORD: I see. How many machines do we have today? Do you have any idea?

DR. HESLEP: Yes, sir, we have, as you perhaps recall, Mr. Rumford -- we already have a registration program, and have registered approximately 18,000 x-ray machines in the State.

ASSEMBLYMAN RUMFORD: How, then, will we know that these machines are in order? Will we necessarily have to show, before they are registered, that the machine is in good working condition?

DR. HESLEP: No, sir.

ASSEMBLYMAN RUMFORD: They will not have to?

DR. HESLEP: They will not have to.

ASSEMBLYMAN RUMFORD: Well, now, this is something that we hoped would happen, because we don't feel that we have inspectors sufficient enough to cover the whole field, and if that was a basic requirement, at least you would start out on firm ground.

DR. HESLEP: There are some practical problems here, Mr. Rumford, with respect to availability of commercial people to carry out such inspections of the large number of machines in a reasonable period of time.

ASSEMBLYMAN RUMFORD: Well, I don't see how we can register a piece of equipment that is not satisfactory.

DR. HESLEP: I appreciate what you're getting at and the reason for the initial registration was to identify what the problems are, what sources of radiation there are in the State, and, then, on that

basis, or on the basis of things we found out in the registration program and from other information such as surveys which led up to introduction of AB 1975, to take the next step, to provide for regulation and inspection. The first registration was only an identification process. Now, we propose to follow this up with regulations and inspection.

ASSEMBLYMAN RUMFORD: You're satisfied, with your committee, that the purpose and intent, the legislative intent, will be carried out?

DR. HESLEP: Yes, sir.

ASSEMBLYMAN RUMFORD: Thank you, Mr. Chairman. That's all.

CHAIRMAN THELIN: Assemblyman Wolfrum?

ASSEMBLYMAN WOLFRUM: On your advisory committee, you have representatives of labor and industry?

DR. HESLEP: Yes, sir.

ASSEMBLYMAN WOLFRUM: And you also have regulations for industrial use of x-ray?

DR. HESLEP: That is correct.

ASSEMBLYMAN WOLFRUM: And these have been found satisfactory to both industry and labor?

DR. HESLEP: I hate to speak for them, but as far as our committee is concerned, they seem satisfactory, yes, sir.

ASSEMBLYMAN WOLFRUM: We had some previous testimony from union representatives -- I believe, the electrical workers-- they were quite concerned about the radiation problem in industry, itself.

DR. HESLEP: Well, we have a labor representative on the committee, and he has expressed, I believe, satisfaction with the

proposed regulations in that regard.

ASSEMBLYMAN WOLFRUM: And, if you do find faulty equipment, do you feel that you have sufficient authority to take care of the problem? Let's say that we find an x-ray machine that's emitting radiation beyond normal levels.

DR. HESLEP: Yes, sir, I think that we have. I think the law and administration of the statutes does provide adequate authority.

ASSEMBLYMAN WOLFRUM: Similarly, the construction of the building itself where the x-ray machine is used. Do you have sufficient regulation there in terms of lead-plating the walls, and so forth, to take care of that problem?

DR. HESLEP: Yes, Mr. Wolfrum.

ASSEMBLYMAN WOLFRUM: Thank you.

CHAIRMAN THELIN: If there are no further questions we will excuse Dr. Heslep and call the next witness. Thank you, Doctor, for your testimony. Our next witness is Mr. Alexander Grendon, Coordinator of the Atomic Energy Development and Radiation Protection Program for the State. Will you proceed, Mr. Grendon, please?

MR. ALEXANDER GRENDON: I have a prepared statement which I have just handed the members of the committee. I am Alexander Grendon, the State Coordinator of Atomic Energy Development and Radiation Protection.

You have heard from Dr. John M. Heslep, Acting Chief of the Bureau of Radiological Health of the State Department of Public Health, an account of the present state of affairs under the Radiation Control Law. The question posed by House Resolution 331 is whether the present state of affairs should be allowed to develop normally, or

whether a change in the law is needed with respect to medical and dental X-rays.

Having attended the meetings of various advisory groups that included representatives of these professions, and having discussed the matter with others in these professions -- in particular, those who in a formal sense have been designated as representatives of professional groups within these professions -- I am of the opinion that there is now no significant opposition to retaining the law in its present form. There are certainly differences of opinion regarding the regulations to be adopted to implement this law, and those differences of opinion have been aired and will continue to be discussed and considered under the normal administrative procedures under which regulations are adopted; but there seems to be fairly complete agreement that the law itself is a reasonable step in the right direction.

Unless other witnesses indicate that my opinion is incorrect, I feel it would be an unprofitable use of the Committee's time for me to expand on the reasons why the present law should be given an opportunity for the test of time. If adverse witnesses appear, I should like to request a later opportunity to comment on such testimony.

Thank you for this opportunity to present my views.

CHAIRMAN THELIN: Thank you, Mr. Grendon, and we will certainly try to give you an opportunity to comment if we have opposition to the regulations. I'd like to ask you - in view of the questions which Mr. Rumford posed to Dr. Heslep, do you feel that the proposed regulations are adequate in the sense of providing for registration

without apparently setting up any standards which machines must meet prior to registration?

MR. GRENDON: Let me clear up the facts of the matter. The regulations would set up standards for the machines to meet. The point of the question is whether it's prior to registration or not.

CHAIRMAN THELIN: Yes.

MR. GRENDON: If it were prior to, then this would, in effect, be the licensing that Dr. Heslep was describing as being somewhat different from registration; and this, I feel, would impose a real hardship on the medical and dental professions, there being thousands of these machines out that do not meet these standards and, suddenly, they would be ineligible to use them. This would completely disrupt things, so it would be an unwise move to require that these machines be in proper shape, with all due precautions installed, before they could be used; but with the registration program now expanded to include an inspection program, and with regulations drafted which tell everybody what is expected of these machines -- what is expected of them, and the offices or establishments in which they are located -- it affords a reasonable hope that those who hold these machines will, of their own volition, start to move in that direction more rapidly than they have in the past, and that as our inspection program gets to these in the course of time, we will verify whether or not they have done so, and if they have not, call to their attention their shortcomings and have them bring them up to the standards we hope to see universally in force.

ASSEMBLYMAN RUMFORD: Mr. Grendon, do you have any idea how many inspectors will be assigned to this particular field?

MR. GRENDON: Unfortunately, the restriction of the fee to \$5.00 per machine, which was written into the statute, is a lower level of operation than we had anticipated having. It will only let us afford a program with something of the order of six inspectors, I believe; but I am not sure -- the Department of Public Health can give you better data on that. They have worked with so many different figures and I have seen so many different figures at various times, that I hate to quote from memory -- it is that order of magnitude. I believe.

ASSEMBLYMAN RUMFORD: How large a fee did you anticipate the law would provide for?

MR. GRENDON: In our original intention, we had visualized this as about a \$15 annual fee. The City of Los Angeles has a going program which has been in effect for over two years now, I guess -- or about two years -- in which they do charge and collect a \$15.00 fee for medical and dental x-ray machines. There have been no protests from physicians or dentists -- no organized protest. Certainly, individuals have protested; but the professional groups in Los Angeles collaborated in writing that ordinance and heartily supported it and, in fact, in many cases, individuals have asked to be among those inspected first. They value the inspection and the results it achieves. We had hoped to use a similar standard here for the State program. However, the objections from the medical profession compelled us to write into the law a restriction that holds it down to a lower level.

ASSEMBLYMAN RUMFORD: How many inspectors would you get for \$15?

MR. GRENDON: The program would roughly be three times as big

as in the other case.

ASSEMBLYMAN RUMFORD: In direct relationship to the fee, then?

MR. GRENDON: Well, there would be, of course, an overhead -- there would be an administrative staff, all of which is a part of that, so it is not exactly that. But, there would be roughly that magnitude of difference.

CHAIRMAN THELIN: Are there any questions from any members of the committee? Mr. Rumford?

ASSEMBLYMAN RUMFORD: Mr. Grendon, would you kindly define your duties.

MR. GRENDON: Yes. The office I now hold has a long list of duties. Essentially, I am an advisor to the Governor and the Legislature. Among the many duties designated in addition to the one of advisor to the Governor and the Legislature, I am supposed to perform the liaison function with the Federal Government and with other states in connection with matters relating to atomic energy development and radiation protection, I am supposed to recommend legislation in an annual report to the Legislature and the Governor, and to supply information and recommendations for action. "No state department or other state agency shall adopt, amend or repeal" (I am now reading from the statute) "any rule or regulation, except emergency rules or regulations, relating to atomic energy development or radiation protection unless and until the proposed rule or regulation, or amendment thereto, or repeal thereof, has been first submitted to the coordinator for such comments, recommendations, or suggestions he may deem necessary or desirable with respect thereto," and so forth.

CHAIRMAN THELIN: This is rather broad. Are you satisfied that there's sufficient law in the state -- my question is broad -- with reference to the exposure to radiation and the protection of the general public?

MR. GRENDON: I think the bill that was enacted in this last session was a much-needed and valuable step in that direction. I think it is an adequate step for the present. It could well be, in the future, instead of taking another step toward control, we could relax control if the situation developed in that direction. We can't predict. For the present, I would say it is an adequate step in that direction.

ASSEMBLYMAN RUMFORD: Do you function with an advisory committee?

MR. GRENDON: The statute set up two advisory groups to my office -- one is the Advisory Council on Atomic Energy Development and Radiation Protection. This consists of representatives of ten fields of interest, including a medical representative and a dental representative, since the last legislative session amended it to make it ten.

ASSEMBLYMAN RUMFORD: Do they meet regularly?

MR. GRENDON: They are required by law to meet at least twice a year. They have, in fact, met about four or five times a year.

ASSEMBLYMAN RUMFORD: I see.

MR. GRENDON: Then there is also an advisory group representing State government, the Departmental Coordinating Committee, consisting, by statute, of the heads of 14 state agencies to which the Governor has added two more that were involved, because he had the right to add them; so there are 16 state agencies represented on that committee.

ASSEMBLYMAN RUMFORD: That is all, Mr. Chairman.

CHAIRMAN THELIN: Mr. Wolfrum, do you have any questions? There being no further questions, we will thank you for your testimony, Mr. Grendon.

Our next witness is Mr. Anthony J. Kennedy, representing the California Dental Association.

MR. KENNEDY: Mr. Chairman and members of the committee, I am not here as a witness. The dental profession and I want to express my thanks to the committee on behalf of the professions for the opportunity to be heard, because this bill and the regulations are of vital importance to the practicing dentists of the state.

With reference to the bill, the bill has the function of requiring the Department to pass regulations for the registration and generally the control of the machines. The regulations are far beyond the scope of understanding of the layman in their technicalities, and for that reason the witness representing the California State Dental Association and the Southern California Dental Association will be Dr. Eugene Ziegler, of Los Angeles. Dr. Ziegler is connected with the U.C.L.A. Dental School. He is, however, appearing as a private practitioner. He has had a long history in work in radiology. He graduated from U.S.C. in 1924, and has been engaged in dental radiology for a period of 17 years. He has been recognized as an authority on the subject, and has lectured before the Nevada Dental Association, the Montana Dental Association, the Arizona Dental Association, and the California Dental Association, on the subject. Dr. Ziegler will speak as a representative of the California Dental Association, the Southern California Dental

Association, and the Joint Legislative Committee.

CHAIRMAN THELIN: Thank you, Mr. Kennedy. Dr. Ziegler, would you come forward, identify yourself, and then favor us with your views, please.

DR. EUGENE ZIEGLER: I am Dr. Eugene Ziegler, of Los Angeles, private practitioner, and am representing the Joint Legislative Committee of the California State Dental Association and the Southern California State Dental Association.

We have no objection to the law of registration of dentists using x-ray machines, or registration of x-ray machines, and no objection to the inspection of the same, but we do have a feeling about the fact there are two governing bodies, as embodied in the law, the Division of Public Health and the Division of Industrial Safety. We feel that there could be a conflict here between the two, and we would prefer that the Division of Public Health would take care of this if possible. The main problem, of course, is the regulations which are very all-inclusive. Much of their regulations are given over to therapeutic application of x-rays and radioactive materials in which dentists are not interested, and our machines are not as strong as these and would require less restriction than the regulations involving therapeutic use of radioactive material and x-ray machines.

While we were represented in some of the discussions on these regulations, our representatives were highly technically trained people in this field, and we have the feeling that the general practitioner would not understand all the highly technical regulations that are in this -- as they are submitted, and we would like to

submit, in view of the discussion that has taken place regarding the implementing of these regulations, that if the portion involving dentistry, which is of a simpler nature than the therapeutic use of the equipment in radioactive materials -- if it were put in a little simpler language and applied directly to dentistry, that the dentists would be able to comply earlier and be able to understand the regulations so they could implement part of this procedure before the inspector came around, and I think this would aid in implementing the program a little faster.

The legislative committee has not met on these regulations, and I am to go back and report to them. My comments are directed to the simplification of the regulations, as I said, so if they are adopted, I think they would be more easily carried out by the profession.

I think this will require additional contact with the Department of Public Health, and I have every belief that we can work out the differences. We do desire that the legislative committee act as referee and umpire. I think there's a need of clarification of regulations and possible legislation; also, that if we have regulations, it should be exclusive of cities, counties and the Industrial Accident and Safety Commission.

Dr. Heslep mentioned that there would be no additional expense. There are some items here that are in the regulations as of now that would require additional expense, but I believe that if these could be discussed and clarified, that this might be taken care of. I am referring in particular to certain items such as shielding which, if you get into and reduce the technical parts of this down to the average practitioner, I am sure the average practitioner would not be

required to use this shielding because he does not use enough x-ray, according to Handbook 76, to require shielding. But as it is written in the regulations, it seemed to me that I was going to have to put in shielding, and all these other men would not, but after discussion with some of the technical men, then we find out this is not necessary. I believe if we could have this written in language, or have an explanation to go along with it so that these men realize that under ordinary conditions of practice they would not be required to do this, this would help a lot in implementing the program faster and have good public relations, if they would realize that they would not have to spend a lot of money. There are certain clinics and high volume practices where a lot of x-ray is done, then this would be required, but this is certainly a safety measure and there would be no objection to it.

Another thing was the dead-man's switch. There was a provision in there for a dead-man's switch. While I do not have any accurate statistics to quote, I have never been in an office where they have had a dead-man's switch, and I do not believe that this is necessary because the switches that we use have to be activated by the person operating it, and if it shuts automatically when it runs down from the time of the exposure, which would be a fraction of a second, or one or two seconds, and so this would turn off automatically, anyway, so it is almost a superfluous thing, and I doubt if there are fifty of them in the State of California.

And, the third thing is the use of the lead apron. This is a requirement that has been put in there, and there is no experimental data to give us any real solid reason for using this. This is a

supposition in that if you do not put the tube in the right place that there is a possibility of exposure, and the lead apron only prevents exposure in the direct line of the rays, and if the proper technique is used, this cannot occur in dental x-ray procedure. So we feel that if the lead apron is used at all, it should be used after we have established the fact that it will help. I do not believe that the amount of radiation they get at the present time would -- with proper utilization of the machine, that this would be something that would justify an additional expense.

The registrations being implemented before the education of the profession in these new regulations is certainly something that would be very helpful and I think, as I have said before here, that if we make these regulations in comparatively simple terms with simple explanations and, then, with the education which the inspector can give when he comes around implementing this, that we would get good cooperation, but I would hope that we could meet with the Department of Public Health and iron out some of these regulations and simplify them so that they are intelligible to the general practitioner rather than the men who are very well versed in this particular area. We have to think of the 8,000 or 10,000 dentists in California that are going to have to do this. Thank you very much.

CHAIRMAN THELIN: Well, Doctor, then we could sum up your general reaction by saying that the substance of the rule seems to you to be satisfactory, but it is the terminology leaves something to be desired, is that correct?

DR. ZIEGLER: Well, the rules -- you are referring to the law now?

CHAIRMAN THELIN: I am rererring to the new regulations which have been proposed.

DR. ZIEGLER: The regulations are in almost too technical terms for the general practitioner. It is as if they were written by a physicist or someone of that type rather than a man who is in general practice.

CHAIRMAN THELIN: It is not quite clear to me at the present time whether or not your association has considered these rules. As I recall, you said in your testimony that your legislative committee has not yet studied these regulations, is that correct?

DR. ZIEGLER: They have relied entirely on the two representatives that they had and, as I say, both of these men are very well versed in this particular thing and do not have the viewpoint of the general practitioner. I am thinking in terms of making the thing work. It certainly is something that is for the public health, and as I said in my opening statement, they are not against the idea of doing this, but it is a matter of implementing and having these things that can be done and the things that are necessary, and some of these little fringe things do not seem to be necessary.

CHAIRMAN THELIN: You propose to discuss this with your legislative committee and then, perhaps, have further conversations with the Department of Public Health?

DR. ZIEGLER: I hope so, yes, and to work out some of these things so that they would be more intelligible and capable of being implemented.

CHAIRMAN THELIN: If there are public hearings on these regulations, you will be watching that situation closely and offer

testimony at that time, I assume.

DR. ZIEGLER: That is for sure. That is right.

CHAIRMAN THELIN: Are there any questions from the members of the committee? Assemblyman Wolfrum?

ASSEMBLYMAN WOLFRUM: Are you saying, Doctor, that the dentist is able to conduct the test to determine whether or not the equipment is safe?

DR. ZIEGLER: No, I would not say that. There are certain pieces of equipment that physicists use. For instance, an ionizing chamber that measures the amount of radiation. But, there are certain things that a dentist can do. For example, in the regulations, in reading them in Handbook 76, there is a statement in there of a busy office, constituting 800 milliamperes - minutes a week of radiation. Now, the average office does not come anywhere near this. Therefore, they do not require lead shielding. The ordinary plaster walls will serve the purpose, do you see? Now, the average man has not figured out how many milliamperes-minutes, and I am not sure that all of them have studied it enough to do this. Most of them do it on a technical basis. They know that if they use a film, and they give a certain exposure, that this takes the picture and it is developed a certain way, and this is it, but to get into the technical procedure of figuring out how many milliamperes-minutes there is, they have not done this, do you see? Now, if we could have a little further explanation of this so that they would understand how this is done and how they could figure it out for themselves and whether they need this shielding or not, because to put in lead shielding would involve quite a bit of expense and

trouble and nuisance, and so on, and if it is unnecessary, it would be a shame to ask them to do this because this would involve a lot of inconvenience and money and whatnot.

ASSEMBLYMAN WOLFRUM: There is commercial service available, though, for this inspection service, is there not, for inspecting the equipment itself?

DR. ZIEGLER: That is right, yes.

ASSEMBLYMAN WOLFRUM: So that if a dentist is not capable educationally or however you want to say it, in terms of conducting the test for the equipment, there is a service available to him.

DR. ZIEGLER: Yes, this has been discussed with some of the men here -- in fact, I discussed it with Dr. Heslep, and unfortunately, these people spring up overnight and some of them are qualified and some of them are not, and this makes a problem too, and the expense is considerable. I mean, this is one of these things that they come in and when there is something new, the law of supply and demand begins to work, and these inspections cost anywhere from 75 to 100, 150 dollars, depending on who does it.

ASSEMBLYMAN WOLFRUM: Do you think there is a need to register or to license these health physicists to be sure that they are capable of making these inspections, that we don't get into the suede-shoe classification in this area, too?

DR. ZIEGLER: Well, I am sure that if you did license them, then we would be there because they would then be set apart and this would create a greater problem in a way. It would seem to me that it is a pretty simple problem. If a man takes so many sets of pictures a week and he is able to figure out the number of milliamperes-

minutes, and there is a certain level of radiation that is allowed, then he does not have to -- for instance, this morning I just figured out that I would not need to use it, you see, because of knowing how this thing works.

ASSEMBLYMAN WOLFRUM: Well, is the radiation accumulative? Does it build up?

DR. ZIEGLER: Not in the walls, no. In a person it does over a period of time. Of course, there is a certain decay factor, too, to it. For instance, if you take pictures this week, and some of them went wrong or something went wrong with the machine, or the film was not good, or something, and you had to take them over within a month's time and, then, you can take them again, and there is a certain recuperative factor, which is involved, so that it is not all to the bad. It does not all accumulate.

ASSEMBLYMAN RUMFORD: Doctor, you mention the Industrial Safety Division and, also, you mention Industrial Accident Division. Do they have any jurisdiction over your group?

DR. ZIEGLER: Well, in the law here, I believe that it makes mention here that the control agency, the Department of Public Health, would enter into an agreement with the Division of Industrial Safety. In other words, you would have two bodies ruling this thing, and it would seem as if, here, we are trying to build up a bureaucracy, where sometimes we are trying to get these things done and make them simpler, here we are getting a conflict of interests.

ASSEMBLYMAN RUMFORD: Well, do they have any control over the x-ray regulations?

DR. ZIEGLER: I would have to refer that to my attorney here.

ASSEMBLYMAN RUMFORD: Can they establish regulations on safety in x-ray rooms for the protection of the employees?

MR. KENNEDY: They have very extensive regulations on the use of x-ray machines at the present time, the Division of Safety of the Industrial Accident Commission.

ASSEMBLYMAN RUMFORD: They are in this business now, so to speak?

MR. KENNEDY: That is correct. And the point that we are trying to make is that if we are going to have an all-inclusive statute on x-ray machines, we would like -- if we are going to have a statute and rules and regulations, we would like to see one law and one set of regulations.

ASSEMBLYMAN RUMFORD: Well, I understand that. That becomes a legal problem with reference to the established provisions, does it not, as far as resolving just what and how much control will remain in the Division of Industrial Safety, and what control will lie in the responsibility of the Department of Public Health?

MR. KENNEDY: I do not know whether I quite got your question, but we have a possible conflict of jurisdiction at the present time. At least we would have, unless the Division of Industrial Safety made its rules to conform identically with the safety provisions of the Department of Public Health, we have two jurisdictions and two inspections.

ASSEMBLYMAN RUMFORD: Well, this will have to be ironed out, will it not? Because, apparently, the Industrial Safety Division is acting with some authority legally, presently, and if we delegate

this authority to the State Department of Public Health, there will be some conflict. As you have stated, there possibly already is.

MR. KENNEDY: I think there is at the present time.

ASSEMBLYMAN RUMFORD: Well, what is the proposal then to resolve this?

MR. KENNEDY: The statute, again, if you are going to have a state regulation of x-ray machines -- I am speaking now solely from the viewpoint of the dentist, but I think it would apply to both professions -- should be all-inclusive, supersede all local regulations, and supersede the authorities and powers of any other department, so we are not bothered with duplicate inspections and not bothered with duplicate rules, so we have one set and one code of standards to go by.

ASSEMBLYMAN RUMFORD: Will this necessarily mean that we will then have to revoke some of the law which the Division of Safety now operates in?

MR. KENNEDY: No, the present act would accomplish that purpose by an appropriate amendment so that it would be the one law relating to regulations and registrations of x-ray machines, and radiation equipment. We can anticipate that this will change from time to time. The fees will be changed -- we know that, we can see the handwriting on the wall on that one -- and, as time progresses, why, the statute will be amended to give more and greater authority, larger fees, so we do not like to be watching all the bills and all the codes and all the regulations. We would like to have one statute that is the sole authority for regulations.

ASSEMBLYMAN RUMFORD: Well, will there be a natural resolution here? Will this thing resolve itself? You said this law then would supersede, although we have this question that the Doctor posed. He does not want two groups making inspections and having to deal with two groups.

MR. KENNEDY: I say that you have that now without an amendment to the present act. The present act gives authority to the Division of Industrial Safety to make these regulations. This particular act provides that the Department of Public Health may enter into an agreement with the Department of Industrial Relations, presumably with the objective that the regulations, where they were not conflicting with the Department of Public Health, would either supersede or take the place of the present rules and regulations of the Department of Industrial Relations, and the Division of Industrial Safety, but, again, the ultimate objective should be one law and this is the basic law on x-ray control, radiation control. This should be the statute.

ASSEMBLYMAN RUMFORD: Well, let me ask you this last question here. The law, AB 1975, says "Nothing in this chapter shall be construed as precluding the Division of Industrial Safety from adopting and enforcing rules and regulations relating to matters within its jurisdiction, consistent with, in furtherance of, and designed to implement divisions of this chapter, and the rules and regulations adopted thereunder."

MR. KENNEDY: Well, to implement provisions of this chapter and the rules and regulations adopted thereunder.

ASSEMBLYMAN RUMFORD: Doesn't this specifically give the

Industrial Relations Division an entry into this particular area, and if this is adopted, is it your proposal that this be removed?

MR. KENNEDY: Yes.

ASSEMBLYMAN RUMFORD: It is, specifically. You want it taken out of it?

MR. KENNEDY: Yes, and the contrary provision made.

ASSEMBLYMAN RUMFORD: I see. Well, that is specifically what I wanted to hear.

MR. KENNEDY: This is the basic statute.

CHAIRMAN THELIN: There being no further questions, gentlemen, we will thank you for your help and testimony. Dr. Heslep, would you come forward again, in view of the question that has been raised here. Does the Department of Public Health have any particular position at the present time relative to this provision that was just read concerning the Division of Industrial Safety? There is a pure conflict here that, personally, I think should be resolved. I would like to know what the attitude of your department is, if any.

DR. HESLEP: With all deference to the committee, I would suggest that we hear from Mr. Grendon.

CHAIRMAN THELIN: Mr. Grendon, will you please come forward?

MR. GRENDON: I was hopeful I would be given an opportunity to speak because I did feel that it is really my responsibility, rather than the Public Health, to tie these together in one package.

CHAIRMAN THELIN: Fine. Then, can we have the benefit of your views in this particular problem?

MR. GRENDON: I will be glad to tell you. Actually, Mr. Kennedy was concentrating so much on dental x-ray that he failed

to realize that the law covered radioactive materials, industrial x-ray, medical x-ray, dental x-ray and a variety of things; so that, to eliminate the provision about the Division of Industrial Safety would, of course, upset the apple cart in many respects.

What the law is intended to say, and the way we are interpreting it -- and when I say "we", I mean both the Department of Public Health and the Department of Industrial Relations -- the Legislative Counsel agreed that this, too, was the proper language in which it was stated - the Department of Public Health is designated as the agency to formulate, adopt and promulgate rules and regulations relating to control of ionizing radiation. That is radioactive materials and radiation machines. However, not to push the Division of Industrial Safety out of its traditional role, because the law that set up my office said that I was to regard the traditional role of a state agency as much as possible, and not to push local agencies out of their accustomed areas of effort, because it is the general policy in California, I believe, to encourage home rule, provision was made for the Division of Industrial Safety to enter into agreement with the Department of Public Health, with the coordinator established as a reviewer, to make sure that their part in it was properly supported, and to permit local agencies, as they developed competence, to enter into it by agreement with the Department of Public Health.

Now, throughout the development of this, the intent certainly has been not to have any duplication anywhere. We are drafting an agreement between the Department of Public Health and the Department of Industrial Relations currently, in which, at this stage of it --

we have not finished it -- at this stage of it, we are in fairly good agreement as to what areas each will operate in. There is to be no duplication. The medical areas, the dental areas, will be those in which health agencies will operate. The industrial areas will be those in which the Division of Industrial Safety will operate. The Division of Industrial Safety cannot sidestep its statutory -- or constitutional, possibly; I am not sure of the legal status of it -- obligation to look out for the welfare of people at their work; but it has, in some cases, as, for example, with boiler-inspectors or elevator-inspectors, delegated the responsibility to people whom they have checked as being capable. Therefore, even where a local health agency may take over jurisdiction, the Division of Industrial Safety could presumably -- and this has to be settled on legal terms; we believe it is possible at present -- could check out the local health agency and say, "yes, with respect to radiation machines and radiation sources in your area, we will accept your competence, and you can execute this for us." Their statutory obligation would be carried out. At the same time, there would be no duplication. We feel there are not enough people to do the job to be able to afford the luxury of having one inspector following on the heels of another in anybody's office or establishment. So, I think the dentists have nothing to worry about on that score, and I think the present law does permit this kind of agreement -- in fact, encourages it -- and this is the agreement we are presently drafting.

CHAIRMAN THELIN: You are going to have a written agreement between the departments as to where their relative jurisdictions

are -- are you saying this is a common thing at the present time between our State Departments?

MR. GRENDON: An agreement of this kind? No, quite the contrary. I know of no instance of the kind.

CHAIRMAN THELIN: Very unusual.

MR. GRENDON: It is extremely unusual. If I said that it is the usual thing, I certainly slipped; but I was not aware of having said it. It is so unusual that we think it presents many problems that no one had dreamed of before. That is the reason it was written into the statute: "In carrying out its duties under this section, the Department of Public Health, with the approval of the coordinator, shall enter into agreement with the Division of Industrial Safety, and may enter into agreement with other State and local agencies, to conduct evaluations and inspections", and so forth.

CHAIRMAN THELIN: Well, do you think it might not be better to spell out in the statute, the relative jurisdictions of the two departments, rather than have a written agreement?

MR. GRENDON: Well, since these jurisdictions have been spelled out in such elaborate codes -- the Health and Safety Code, the Labor Code -- it seemed a little difficult, as well as presumptuous, to undertake in a paragraph of this statute to spell out these jurisdictions, but rather to work out details in an agreement, as to the kinds of establishments that are evidently of the one type and those that are evidently of the other. We have already done this. We have listed a great variety of establishments and parceled these out in their accustomed fashion -- and if I use the word

"accustomed", it is only in this respect, as there certainly have been no customary agreements between departments that I know of. There had been none between the Department of Public Health and the Division of Industrial Safety over the many years in which they have had this same rubbing of shoulders when they enter an establishment.

CHAIRMAN THELIN: And they have not had any conflicts?

MR. GRENDON: I refuse to comment on this, as being one too new in State Government to express an opinion as to whether or not there have been conflicts over the years; but I do know that they are certainly involved in the same areas. There is a Bureau of Occupational Health in the Department of Public Health and there is the Division of Industrial Safety; and, although they have gone along with greater or less smoothness of operation, through the years, I am sure that there must have been times when there were doubts as to who should do what.

CHAIRMAN THELIN: Do you know if this language which the Legislative Counsel has placed here, regarding this Division of Industrial Safety, if that phraseology occurs in any of our other statutes?

MR. GRENDON: Which in particular do you refer to? "Nothing in this chapter shall be construed as precluding the Division"?

CHAIRMAN THELIN: Yes.

MR. GRENDON: I do not know.

CHAIRMAN THELIN: It just seems to me like it is sort of a backward way of doing it.

MR. GRENDON: Well, I would certainly be in favor of any language that would clarify the intent, the intent being to have no

duplication of effort but not to push any agency out of an area in which it is traditionally required to operate.

CHAIRMAN THELIN: Well, the problem, it seems to me, is: we are creating a new responsibility and a new authority to protect the people of our state and in so doing we almost necessarily are going to have to move over into jurisdictions that perhaps have formerly been occupied by other state departments. Now, there is going to be a conflict. Somebody is going to have to step in and somebody step out. I do not know how you can eradicate this area of conflict. Now, if, by this, we are going to try to eradicate this conflict by always resolving it in favor of the Division of Industrial Relations, then I think we are not doing what we should do, because there may be some areas where the Department of Public Health should have precedence. And I am just wondering if this language could be construed in such a way as to always tip the scales in favor of the Division of Industrial Safety.

In other words, you have a blanket authority here, to the Division of Industrial Safety, to keep operating, as long as you are doing something in furtherance of the provisions of this chapter. Now, that almost seems like a blanket authority to me, at least, for them to step in and enforce it right along with the Department of Public Health.

MR. GRENDON: Having to be partisan to neither department, but being in the role of coordinator, it has seemed to me that, if either department felt unjustly dealt with, the Department of Industrial Relations might more nearly feel so, in that the Department of Public Health has been made the controlling agency.

In other words, it is the agency that writes the regulations, and the Division of Industrial Safety can adopt and enforce rules and regulations that are "consistent with, in furtherance of, and designed to implement the provisions of this chapter and the rules and regulations adopted thereunder", which are adopted by the Department of Public Health. Now, as a matter of fact, our plan, which, as I say, has not yet been formalized in this agreement with the Division of Industrial Safety, is that the one set of regulations which the Department of Public Health writes will be the one set of regulations of the State, and the Division of Industrial Safety would extract those portions that pertain to its areas of interest.

CHAIRMAN THELIN: Of course, legally, the Division could promulgate some rules as well, but nothing that would not be in furtherance of the provisions of this chapter and, of course, the rules and regulations.

MR. GRENDON: This may not have been the best language. As I say, by advice of the Legislative Counsel this language was drawn up when the intent was stated that the controlling rules would be those of the Department of Public Health.

CHAIRMAN THELIN: Are there any questions from other members of the committee?

ASSEMBLYMAN RUMFORD: Yes, Mr. Chairman.

CHAIRMAN THELIN: Assemblyman Rumford.

ASSEMBLYMAN RUMFORD: It seems to me that we should get a Legislative Counsel opinion on how far each department could go.

CHAIRMAN THELIN: Perhaps we can have our staff inquire of the Legislative Counsel as to the effect of this terminology and

whether or not it has been used in any other statutes -- if we have any precedence that we can go by in construing it or interpreting it, or if this is a completely unique use of the legal phraseology involved.

Now, Mr. Grendon, you were going to say something further?

MR. GRENDON: I should like to comment on a couple of points that Dr. Ziegler raised. Not on the details, because I think these really belong before the Board of Public Health, which will hear the regulations. I think that is a very good reason for having regulations separate from the law. But, his concern about dental machines being -- that they should be less restricted than therapeutic. Well, they are, in fact, in the regulations as they are drafted. In fact, the dental machines are largely dealt with in a separate section of these regulations. But, I certainly encourage the Department of Public Health - and shall do so - to undertake the task somewhat similar to that which the Department of Motor Vehicles does with respect to the vehicle code: write up a little pamphlet which gets away from the lawyer's language and says, "Here is what it really means." Not making a commitment - the law is still the law - but writing it in so much simpler terms for the average reader. I think it may well be that there are those in the dental and medical profession who know so little about their x-ray equipment and the technical aspects of it, because, indeed, even among radiologists, when they want any of the protective aspects taken care of, they do not turn to physicians; they turn to physicists and people of that calibre....

CHAIRMAN THELIN: Well, you do not have any objection to

simplifying the terms and try to make them more understandable.

MR. GRENDON: On the contrary, I am heartily in favor of it.

DR. HESLEP: May I say just one word here, Mr. Thelin?

CHAIRMAN THELIN: State your name, Doctor, so we will know you are on the tape.

DR. HESLEP: John Heslep, State Department of Public Health. I just wanted to point out that prior to this hearing we had discussions with Dr. Ziegler and Mr. Kennedy, and we assured them, and I would like to assure the committee, that we have offered to work with Dr. Ziegler and Mr. Kennedy and their legislative committee to try in every way possible to work out these regulations in such a manner that they will be satisfactory to the dental profession.

CHAIRMAN THELIN: Thank you very much. Mr. Grendon, does that complete your remarks at this time?

MR. GRENDON: Thank you.

CHAIRMAN THELIN: Thank you very much for your testimony. Our next witness will be Dr. Walter Coulson. Doctor, are you present? Would you state your name and affiliation, please, and then proceed with your statement.

DR. WALTER COULSON: Dr. Walter Coulson, Pacific Roentgen Society. I am a member of the Advisory Committee on State Radiation Regulations of our society.

The officers of this society, now constituting more than 400 radiologists in California, have continued to hold conferences with private and official persons interested in improving radiation safety. Since exposure to ionization, ionizing radiation, occurs at the hands

of other than radiologists, it seemed desirable to seek the cooperation of manufacturers and distributors of radiation equipment so that installations of all types for human use might be made as safe as possible. On May 4, 1961, the following letter was sent by the society to the x-ray manufacturers and distributors in California:

"Dear Sir:

"The Pacific Roentgen Society has held discussions with State and Federal authorities interested in furthering the cause of radiation safety.

"The Executive and Advisory Committees believe that voluntary compliance with the under-mentioned program will speed patient safety. Accordingly, this letter is going to the leading manufacturers and distributors of x-ray equipment in California, with the request that each review and, if approved, put the program into effect. Notice concerning same will be published in the bulletin going to more than 400 radiologists.

"We realize that many of these recommendations have already been adopted by you, but the profession and the public will appreciate confirmation."

"Cooperative Radiation Safety Program

"Every manufacturer or distributor of x-ray equipment in California, or as one servicing the same, our group endorses the following:

- "1. New Equipment - In addition to installation and in accordance with local state and federal regulations, we agree to recommend that users employ:
 - "(a) Adequate beam collimating devices so that the beam is confined to the part under study or the film size being used;
 - "(b) Adequate filtration in diagnostic tubes, a total equivalent to about two millimeters of aluminum;
 - "(c) Gonadal shielding material such as lead-rubber especially in males under the age of 50;
 - "(d) Known output of fluoroscopes at the table-top at time of installation;

- "2. Equipment already installed - We agree to recommend compliance with the above points, and to this end will provide necessary service at regular rates."

Signed by the member of the particular company.

This was the first step in May that the committee had undertaken to try to have the manufacturers and distributors of the x-ray equipment comply with, we think, the best reasons and aids for radiation safety.

On October 18th of this year, the Advisory Committee on State Radiation Regulations met and summarized the following five points: (The following grouping refers to the numbered groups in Draft 2 of the Public Health Department version).

#1. Group 1, Article 3, Paragraph 2 - The Committee recommended that renewal of registration every two years was not necessary. They voted for no renewal.

#2. Article 5, Section 2 - The word 'disposal', appearing here and in other places, should be clarified.

#3. The registration fees and licensing fees would fall far short of the money necessary to make the inspections or to enforce these rules or regulations, and, in summary, to go over the program to reduce the amount of ionizing radiation that is necessary.

The Committee believes that this matter should be one for general tax funds. If so, amending legislation would be necessary.

#4. Page 27 in Group 3, under Item C - Operating Procedures:

No. 1 - It is sometimes impossible to avoid holding patients during exposure. The monitoring should take care of this exposure problem; and many times it is difficult to examine -- or almost impossible to examine -- babies, epileptics, and many of the mental

patients that we must examine.

Next, the determination of the radiographic field is a medical decision and should not be limited by regulation.

Then, the statement should be changed to say that gonadal shielding, as suggested, should be done whenever possible. Certain examinations cannot avoid the region of the gonads, and this is a medical determination and should not be spelled out in a regulation.

Similarly, the entire Item C, under Operating Procedures, they felt was ambiguous, unnecessary and should be omitted.

Lastly, the most important part of our committee meeting: Group 2 - Licensing of Radioactive materials. The committee recommended that this be expanded to include users of equipment producing ionizing radiation, especially fluoroscopic and radiographic units. Presumably, this would require amending the state law. The Committee noticed that radium has been added to the radioactive materials in this section, and inquires whether x-ray machines could not also be added by departmental interpretation. It believes that licensing of users of fluoroscopes is most important. The Committee suggested a state radiation examining board or a committee of the body which is going to license users of radioactive materials. This should set up the training and the experience requirements. The committee felt that the registration of x-ray machines, and the proposed rules and regulations governing their construction and, in a small way, their usage, is analogous to registering our automobiles today with the safety regulations that are required and such things as the headlights and the brakes, but not licensing the user, so that they may drive at any speed in any lane or in any direction.

CHAIRMAN THELIN: Does that conclude your statement, Dr. Coulson?

DR. COULSON: Yes.

CHAIRMAN THELIN: I wonder if you could summarize for us, in general, your attitude towards the proposed rules. I mean, you pointed out these various difficulties that you see in them. Generally, however, do you feel that the rules are -- what shall I say? -- Going in the right direction, or do you have serious objections to the fundamentals contained in them?

DR. COULSON: Going in the right direction, yes; much too complex, I think, to be carried out and infringing, in part, on the practice of medicine, and this, as we see it, is going to -- the law has already been passed and we are merely writing the regulations and so we feel that if this law is passed as such, that you absolutely should license the users.

CHAIRMAN THELIN: You would prefer a licensing provision, as that term has been used here today, rather than the registration that is now provided for?

DR. COULSON: Yes, or both.

CHAIRMAN THELIN: Or both. Well, that is rather surprising, I would say. Are there any questions from members of the committee? Mr. Rumford.

ASSEMBLYMAN RUMFORD: You are not speaking now, are you, for the medical --

DR. COULSON: No.

ASSEMBLYMAN RUMFORD: No. You are speaking for the--

DR. COULSON: Pacific Roentgen Society, a committee of five.

ASSEMBLYMAN RUMFORD: Would you interpret your last phraseology used there, that we would be going in every direction at the same time?

What did you mean by that?

DR. COULSON: Oh. No, I just meant the automobile. Today when you register an automobile, you have to have a license to drive it, and it requires certain rules and regulations and abilities that you must prove before you can use this piece of equipment.

ASSEMBLYMAN RUMFORD: Yes.

DR. COULSON: And, I just meant that if we did not license someone and they did not have any ability to drive an automobile, they may be using any lane or driving at any speed.

ASSEMBLYMAN RUMFORD: And that compares to the use of --

DR. COULSON: This compares to the use of a fluoroscope which we feel is the most dangerous piece of radiation equipment in use today, and to the amount of time it is left on.

ASSEMBLYMAN RUMFORD: You want greater control.

DR. COULSON: Yes. If, as we see it, the law is going through, has been passed as such, we do want greater control.

ASSEMBLYMAN RUMFORD: And that means licensing, inspections?

DR. COULSON: Correct.

ASSEMBLYMAN RUMFORD: And current inspections, I assume? That is all.

CHAIRMAN THELIN: Assemblyman Wolfrum?

ASSEMBLYMAN WOLFRUM: You made reference, Doctor, to the fact that you feel that the fees for the registration are not adequate, and are you saying, then, that this should be -- this inspection, or whatever the costs of the program are -- should be borne out of general tax funds rather than the people that are using the service or requiring the service to pay the cost of it?

DR. COULSON: Yes, I am, sir.

ASSEMBLYMAN WOLFRUM: We would disagree on this point.

DR. COULSON: I know. Assemblyman Rumford, I hope I didn't mean to imply, when you asked me the question about the users, of the field of technicians. I meant this professional field -- doctors -- and not referring to x-ray technicians, for licensing.

CHAIRMAN THELIN: Well, thank you for clarifying that point, Doctor.

DR. COULSON: May I add these remarks to my oral testimony:

Our problem is to help with public protection by means of gradually evolved practical state regulations. These might include:

- (1) Minimize human gonadal radiation especially that from direct x-ray beam by:
 - (a) Licensing professional users of x-ray fluoroscopic equipment.
 - (b) Advising, and where possible, regulating the manufacturers and distributors of radiation equipment so that installation of all types for human use might be made as safe as possible.
- (2) Continue the present registration of x-ray equipment and make random inspections of units and users, especially those without special professional training in this field.
- (3) License and regulate radioisotope users (by the new state law).
- (4) Gradually train inspectors who understand the great benefits and safety of properly used radiation as well as the hazards.

CHAIRMAN THELIN: Are there any further questions? I guess not. Thank you very much, Doctor, for your testimony.

Mr. Linsky, did you wish to make a statement at this time?

MR. BENJAMIN LINSKY: Chairman Thelin, my name is Benjamin Linsky, Air Pollution Control Officer of the Bay Area Pollution Control District.

I have no formal statement to make. I submitted a letter to the committee. I have some materials which consist of a report which we presented to our Board of Directors of the District, and their determination on that report. If you wish, I can sum up our interest and our activities which are limited in the field of radiation protection.

CHAIRMAN THELIN: I think we would be interested in a short summary of that nature. Would you want the Sergeant to distribute those statements to the members of the subcommittee?

MR. LINSKY: Yes. Thank you.

The recommendations from myself and my staff to our Board of Directors can be summed up as follows: With respect to the entire field of radioactivity monitoring and radiation protection, our work is limited in the following way:

First: We continue to, and will continue to, evaluate the plans for the construction of major installations, including atomic reactors, involving radioactive materials in cooperation with local state agencies.

Second: We are offering and have made arrangements for assisting the Atomic Energy Commission Emergency Radiation Assistance team in the Bay Area for operations in the event of a local emergency, such

as a spill or some other local emergency.

Third: We will retain information about radioactive levels -- radioactivity levels in the world-wide fallout nature -- and simply store that information and refer any major questions to the State Department of Public Health, which is authoritative on that subject.

These recommendations were made to the Board of Directors, and they concurred in those.

CHAIRMAN THELIN: I see. Thank you, Mr. Linsky.

That concludes the list of witnesses who have asked to appear before the subcommittee on this subject.

FALLOUT SHELTERS

CHAIRMAN THELIN: We will not proceed to the second topic we had before our subcommittee, and one that we did not think we would be able to reach until this afternoon. However, we are happy that we are getting a chance to start it early, because we feel that there will be many witnesses.

The Chairman would like to state that we were just informed of six other people who desire to testify on this subject. Now, since we naturally must give preference to those witnesses who requested to be heard ahead of time, we may not be able to hear all of these people who have requested to be allowed to testify today. We will do all that we can in the time that is left to us, but we simply cannot assure those who have just asked to be heard that they will have a chance to testify today.

Our first witness today is Mr. Allan K. Jonas, the Director of the California Disaster Office. Mr. Jonas, would you come forward,

please.

MR. ALLAN K. JONAS: Mr. Chairman, members of the committee. It seems hard to believe that it was just a scant year ago that I testified before this committee in Los Angeles. So much has happened in the meantime. So many changes have occurred. Today it does not seem to be such a problem to stimulate interest in people concerning the problem of fallout and fallout shelters, but it seems more a problem of controlling, of directing this interest, of protecting the public, of assisting them in what they want to do. I am most delighted with the fact that one of your members, perhaps, as a result of that hearing a year ago, presented and achieved success for the only bill concerning fallout shelter that was passed by the last session of the Legislature. That is Mr. Rumford's bill to amend the Highway Improvement Act of 1911.

This morning I would like to give you a summary of our latest thinking and the Federal Government's latest thinking on fallout shelters, using the booklet "Preparation For Survival", as an outline.

This is a report of a group of men the Governor requested to meet as a Shelter Study Committee, members of State Government, including myself, Mr. Mugford from Finance, Mr. Cooney from the Department of Public Works, and a number of other people from the Department of Education. They came up with certain recommendations which might serve as a very valuable springboard to your present considerations. If you notice, number 1 concerns tax incentives. You are aware, of course, of the Governor's and of the California Disaster Office's recognition that the problem of fallout shelters

for the citizens of California will probably not be met by the family fallout shelter alone. We have gone on record time and time again as favoring a group or community shelter plan. Nevertheless, it seems quite important to recognize the need for a system of shelters. That no one type of shelter is going to solve the problem of sheltering the population. For instance, in rural areas where distance would make a community shelter perhaps less appropriate than a family shelter, we need family shelters. In homes where invalids live, a family might prefer a family shelter rather than the need to transport people to a community establishment, and we must also recognize that before a federal program or even a state program of community shelters would be completed, many years would elapse. A lot of people might like to have that protection in the interim. The Department of Defense informed me that should they receive all the funds that they are going to request for community shelter, it may be several years before more than three square feet per person or per shelteree would be available for most of the population. This is not comfort. It is survival. But it perhaps would be five years before what we consider the minimum comfort of ten square feet per person would be achieved. So a lot of people might seriously consider the acquisition of a family fallout shelter, as a man would buy an individual life insurance policy for his family and himself, even though he knew the company was going to install a group policy several years later that would be much cheaper.

So, we favor encouraging family fallout shelters, not discouraging them, as we go ahead with the programs to build

community shelters, and, therefore, we must, I think, face up to the fact that tax incentives are a logical incentive. Particularly the one that exempts that portion of a shelter that is shelter, one-purpose shelter, from an increase in ad valorem taxes. I have reports that counties throughout the State, a majority of counties, are solving this problem administratively. There have been no homes sold or resold with shelters, so it is very difficult to put a value on a shelter. It may increase the value, it may decrease it, it may have no effect on the value of a home. Therefore, many counties are not placing any appraisal value on the shelter. But, this is not always going to be the case. There will be resales, and it seems that a policy from the State would be valuable rather than this improvisation the county assessors are undertaking. This would require, of course, a constitutional amendment, the vote of the people, to allow this exemption of ad valorem tax increases for shelter.

Item Two concerns building code revisions, and this particular section seems as valid today as it was last December when it was written. I would report to you that certain civil defense directors, especially in the Los Angeles area, are concerned over the possibility of shelters creating an attractive nuisance, very much as the abandoned iceboxes did in the past, and this should be kept in mind, in amending building codes and zoning ordinances to permit the construction of shelters for emergency purposes only. There has been some improvement in the private financing of shelters. However, I have received reports that banks are reluctant to lend money on FHA guarantee loans, even though they now may be achieved for as high as 40 years. A

builder of an apartment house in this general Bay Area has received a sizeable loan from FHA sources for 40 years, but this man had a financial statement that would have warranted the loan anyway. The individual homeowner is still unable, it seems, to easily achieve FHA financing of any lengthy term for a home shelter.

The item of shelter standards is most relevant to all of the items we will discuss, and the California Disaster Office is publishing this week and mailing to local jurisdictions a set of standards. We hoped the Federal Government would preempt this necessity, but they have been so involved in reorganization and so overburdened with a sheltered survey they are conducting that we have not received these criteria, and are publishing an interim set as guide-lines to local government.

One thing that might come out of this, and I would submit it to your consideration, is a requirement that plans - perhaps even the shelter itself - indicate what degree of attenuation factor or radiation protection it provides, and if it boasts of any blast protection, it, too, should be indicated on the plans and shelter. We do not sell insurance policies in our state with the amount of insurance left blank, and yet that is pretty much what we are doing in the sale of shelters to the public today. Whenever there is a public surge of interest in something, whether it be a cure of cancer or a shelter program, the suede-shoe boys step in. I can report to you one unfortunate incident of a family in Sacramento that could ill afford it, who were sold five fallout suits as fallout protection. This was, of course, augmented by the picture appearing on the cover of Life magazine, showing a decontamination

suit, and the salesman used this to make his sale. As the committee knows, you and I are wearing fallout suits this morning. Add a hood and some gloves, and that is about the extent of the protection that this particular device would have offered this family.

Item Five is one of particular interest to me, because I have long felt that shelter on school grounds is the most refreshing answer, the most exciting prospect to providing community shelter to our population in California. We know, however, far too little about the cost of such plans. I heard reports from the Department of Defense that windowless schools could be 20% less than conventional construction, and would offer an attenuation factor of a thousand, or adequate fallout protection for our children. I have heard that underground construction of a dual purpose nature, an underground cafeteria or auditorium, could be built for -- and here the reports conflict -- from 2% to 12% additional construction costs from conventional costs. The pilot project, therefore, seems a logical first step, before spending large sums of either federal or state or local money on community shelter on school grounds. It seems to me that we need to know what are the costs, peculiar to California schools. We ought to know how much it costs to build one underground, one above ground, one with a dual purpose use, one with a single purpose use, one with blast protection, as well as fallout protection. I might add that an interim joint committee is studying this problem at the present time, chaired by Assemblywoman Davis, and they will be meeting and holding hearings in December.

There is some housekeeping that might be done by this

committee concerning state procedures in approving such shelter. For instance, the Schoolhouse Planning Board, I am told, will not approve windowless schools or underground facilities at the moment, while the Division of Architecture has no objections to them.

It would seem that the State School Building Aid Program, as mentioned in the last paragraph of Item 5, could be amended so that the square footage would not penalize a school district in getting state aid if it were to build or include a shelter in new school construction. And, finally, I think you might very seriously consider making mandatory certain drills of a civil defense nature, certain written plans that schools could be doing, and certain inclusions in the curriculum of civil defense information for our children. It has been permissive up to this date, and from what information we have been able to receive from the Department of Education, the degree of readiness of our schools, ranges from zero to a very high degree, the complete spectrum.

I might add that the City of Los Angeles is considering the construction of such school shelters through the passage of a general obligation bond issue of \$404,000,000 for the County of Los Angeles. I was speaking with Mr. Hahn, the author of the bill, this weekend. He suggested that perhaps the State could do something of the same nature, or his recommendation was that a one-cent levy be taken from the State 4-cent gasoline tax, and that such shelters be built on the rights-of-way of the highways, slowing down the highway program perhaps slightly, but giving us a degree of shelter, community shelter, in our state.

A special purpose shelter district, it seems to me, will

suffice as it stands. I think that the Attorney General and other legal cases will uphold the ability of people to form shelter districts in this State.

I would bring to your attention one problem that has come to our attention in the City of Los Angeles, where a group of people have applied for shelter districts. The work-load has been so great in the entire field of districts, that it appears to be two years before they will even be able to hold hearings or vote on these shelter districts. Therefore, a priority to shelter district applications might be considered to break this log-jam in such communities as Los Angeles. Parenthetically, one of the things that the California Disaster Office is trying to achieve with the Federal Government, is a form of reimbursement for groups or communities that spend money on community shelter, should a federal program come down the road some years later. It has always seemed unfortunate to penalize the forerunners in the field - in any field. I have received hope from officials in the Department of Defense that should a program to finance community shelters be instituted by the Federal Government, that there is a possibility of bidding in a community that has built its own shelter for the shelter, and if it meets criteria and has been built as inexpensively as a new shelter can be built, the Federal Government would pay this community and reimburse it for its outlay. If this could be assured, it would stimulate a great deal of action and we would receive a shelter program in California years earlier.

Item 7 concerns the survey of existing shelter, and as you may know, we have surveyed all state-owned buildings in Sacramento.

Governor Brown has asked us to extend that survey state-wide to all state institutions, and this is good. The Federal Government is coming along and by the end of next year should complete a federal survey of all buildings, public and private. They will be marked where they find that they will shelter 50 people or more and give an attenuation factor of 100 or better.

Unfortunately in California, this promises to yield less shelter than perhaps any other state in our Union, with the exception, maybe, of Louisiana and Florida. Obviously, we do not have the basements, we do not have the underground transportation, we do not have our multi-storied buildings, such as the one in which we are sitting, where people live. We have bedroom communities in California. So, I suspect that a survey of existing shelter would be a logical point of beginning to show what we have and where the needs exist, but that something more will be required.

There are no funds on the state level to upgrade shelter in state buildings to allow for more people to use them in case of a disaster - a nuclear disaster. There are no funds to include shelter in new state construction. A time when it is least expensive to include. I might add that our recommendation says that shelter for state employees and the public should be included in all new state construction. A building like this, for instance, could shelter many more people than those employed here, and should the disaster occur after business hours, it should be, it seems to me, available to the public.

Finally, the item of protected seats of government, or underground communication centers, or operation centers, or whatever

you want to call them, seems to me germane to any preparation for disaster the State of California should attempt. Our office is a monument to optimism in Sacramento. It is a building that might reduce radioactive fallout by a factor of two. It seems to me that the Governor and the people necessary to keep state government in operation, equipped with adequate communication, should be, protected perhaps, on the Capitol grounds. I can report to you that the Governor and his staff and our office are working, and the Division of Architecture, are working on that right now. We found an area in the garage that seems quite adequately constructed to be modified to accommodate the Governor.

To build emergency operating centers in Sacramento and in the six regions of California that our office has jurisdiction over, would cost the state somewhere around $5\frac{1}{2}$ million dollars. It seems to me that existing state shelter -- state buildings, however, could be modified to provide these communication centers, protected centers, for considerably less. I suspect that something like \$20,000 per district, or a total of around \$120,000 might be adequate. At least, the first step, to upgrade the shelter and provide it with communication.

I can report to you that that the public information program has made great strides. The public is informed, as far as I know, and will be additionally informed through a message from the Governor included in the Motor Vehicle Department license renewals, through films we are preparing for service clubs and for television, and through booklets that will be received through the mail from the President, concerning what the individual citizen can do with what he

has today. After the Presidential message is received and we know what it contains, I might be in a position to recommend that the State produce a smaller booklet tailored, perhaps, to the needs of Californians.

Your interest has been most appreciated by our office in the past, and it seems to me absolutely vital to our program in the future.

CHAIRMAN THELIN: Does that conclude your remarks, Mr. Jonas?

MR. JONAS: Yes, it does.

CHAIRMAN THELIN: I see we have about three minutes to twelve. Would you be available for questioning after lunch, if we were to terminate our proceedings for the time being?

MR. JONAS: Yes, I can.

CHAIRMAN THELIN: I am sure that I and the other members of the committee will have many items they will want to ask you about, so we will then adjourn for lunch, and we will return here at 1:30 P.M., to start in again, and if you could be here at that time, Mr. Jonas, we would appreciate it.

MR. JONAS: Very good.

AFTERNOON SESSION

CHAIRMAN THELIN: The meeting will come to order. We will resume with Mr. Jonas, if you will come forward again, Mr. Jonas, please. The committee is a little short, but we will try to think of enough questions to make it interesting, for awhile.

Mr. Jonas, I wonder if you could review for us exactly what the present status is relative to what the Federal Government is

ready to do now in the shelter program. Are there any funds available for the state, or is this completely a speculative matter at the present time?

MR. JONAS: Not completely, Mr. Thelin.

CHAIRMAN THELIN: Would you be able to describe the present situation to us?

MR. JONAS: I shall try. You recall one of my recommendations was very strongly in favoring a protected seat of government. The Federal Government has for some years, and will continue to, make available to state governments and local governments matching funds on a 50-50 basis for the construction of such shelters. These funds are available, however, only if we meet certain criteria. For instance, in Sacramento they would not match funds for the minimal program I described, remodeling the basement. They would, however, match funds if we were to start from scratch, as we did on the vault on Capitol grounds, and build a fallout shelter that would also have a blast capacity. They feel that blast would be, perhaps, a necessity because of the proximity of Mather Air Force Base.

The current plan -- or, the availability of federal funds at the moment are almost entirely for the fallout shelter survey in existing structures. It includes, however, the marking of such structures where they find it, whether on public or federal buildings or private buildings, and the stocking of it with survival supplies. There is a wheat wafer that the Department of Agriculture has developed. It is really quite edible, and is not likely to be pilfered because it is not that edible. Certain crude tools to help dig out of rubble, certain medical supplies that might be necessary, and minimum sanitary

facilities. They also have sufficient funds to upgrade shelter in federal buildings, not in private nor state buildings, but in their own operated buildings, and they, furthermore, have acquired certain funds to include shelter in all new federal construction. That is all that they have in their pocket. The rest is partly speculative and it will depend upon the Bureau of the Budget which will look at their current appropriation request, and then finally, upon how much of that Congress will grant them.

CHAIRMAN THELIN: You are reasonably certain that there would be an attempt to enact federal legislation next year that would make more funds available?

MR. JONAS: I do believe so.

CHAIRMAN THELIN: It is your opinion?

MR. JONAS: It is my opinion that half a billion dollars will be earmarked for school shelter. They are not yet decided on the size of the carrot to hold before the school districts. The present thinking is that it should be for dual-purpose, not single-purpose construction, and if the Federal Government would pay merely for the increase in costs required to make such a facility a shelter.

CHAIRMAN THELIN: In your opinion, would there be any attempt to provide more funds or more federal aid in an area, such as California, that might be more apt to be subject to attack? Or, would it be a situation where every state is going to share on the same basis?

MR. JONAS: I would say the likelihood is more toward the

latter alternative, Mr. Thelin. Many of us, the Civil Defense directors of the State, in a meeting that is called the "Governor's Cities and Counties Civil Defense Directors Advisory Committee" decided to request the Department of Defense to give us Phase Two of a shelter program, feeling that the survey was important, but that it would reveal so little shelter for our citizenry. This was turned down. They decided that, even though California is likely to only yield 15% of its population shelter, that they would not try to phase in a second program of construction or additional incentives at this time.

CHAIRMAN THELIN: Well, this would mean that even if we get everything that we might expect at the present time from the Federal Government, our state program would still have to be extremely active. Would this be your conclusion?

MR. JONAS: Especially in the field of research and development, Mr. Thelin. I can see a federal program, such as the one I have just described, suddenly making available rather sizeable funds to the State of California for construction of school shelter, and I can also see us in a position to spend that money to get the most out of it for California topography and educational requirements. To do that, however, we should be doing that now, perhaps expending some funds to build a few on a pilot project basis.

CHAIRMAN THELIN: You mention in your testimony that the State is going to provide standards for shelters. Now, are these in the nature of suggested standards, is this what you had in mind?

MR. JONAS: Exactly.

CHAIRMAN THELIN: Would you visualize any, or would you like legislation that might make it mandatory to achieve certain standards in the construction of shelters? Or, is this is to be a matter simply of individual discretion?

MR. JONAS: It is a difficult question, Mr. Thelin. I can try by stating that in a group of scientists, 15 men - among whom one of the witnesses was listed to meet before you shortly - I saw the most knowledgeable men in our State have difficulty deciding minimum criteria, and one of the problems that confronted us was the fact that what is minimum criteria for Modoc County would hardly do for the City of San Francisco, and as soon as you start trying to write history before it happens and decide where weapons might be programmed or fall and explode, you are in very difficult waters. I suspect that we best make suggestions until the Federal Government were to come down with criteria, and let each county decide for itself if it wishes to upgrade these criteria or even downgrade them.

CHAIRMAN THELIN: When you talk about standards, are you speaking of things such as the amount of ventilation, etc., as well as the length and depth and width and all that?

MR. JONAS: Actually, that is as important as the attenuation factor. We also talk about the need for self-sealing against fire storms. You notice that even the fires in Los Angeles yesterday created fire storms, and it is quite likely in a metropolitan area like this we have as much to fear from fire storms where the fuel exists, as we do from nuclear fallout.

Therefore, an ability to seal the shelter for six to eight hours seems as essential as being able to cut down the radiation affecting the shelterees.

CHAIRMAN THELIN: I noticed in the booklet, to which you were referring as an outline for your remarks, they talk about this protection factor. Perhaps you could explain to the committee what that is when you discuss it in terms of a shelter.

MR. JONAS: Yes. Well, very simply, when you say "protection factor of a hundred", you mean it is a hundred times safer on the inside than out. We visualize, for instance, a heavy attack producing a level of radiation of 3,000 roentgens per hour. As you know, a fatal dose is from five to six hundred roentgens received within a short period of time. If you had a protection factor of a thousand, that radiation within a shelter would only be three roentgens per hour, or in which human life could well survive.

CHAIRMAN THELIN: Relative to your remarks as to the making use of the school as a community shelter, what exactly is the power of the State in that regard? Can we insist on this at the present time, or are you aware of the legal situation that exists? Are we in a position where we can only suggest, or tag it on to the use of the state funds? I would assume that we have no statutory authority to insist on this being done at the present time.

MR. JONAS: I really do not know the answer to that, Mr. Thelin. I think it would be a very pertinent one to discover, however.

CHAIRMAN THELIN: Now, you mentioned the fact that it was a school planning committee that objected to windowless schools? What is the reason for that? Some health reason, or do you know?

MR. JONAS: I suspect that it has something to do with the traditional thinking on the educational process which is best with outdoor vision windows. It has certain esthetic qualities, too, and I know that California is very proud of its school construction. We have one windowless school in the State--Moraga School. There are several being built around the country. We recently heard testimony from a man from Artesia, New Mexico. It evidently does not interfere with the educational process, according to these people. In fact, it often improves it by removing certain distractions, by allowing heat and light to be controlled.

CHAIRMAN THELIN: So you would feel there are really no justifiable objections to a windowless school then?

MR. JONAS: Not in my opinion. However, I would certainly like to hear from the people in the Department of Education and see if they have any objections.

CHAIRMAN THELIN: When we speak of shelter, it is my understanding, at least, that we are basically discussing fallout shelter. In other words, reading your recommendations here, you recognize the fact that blast and fire and these other things, of course, could be just as bad, but we have to emphasize on the most practical type of protection, and that is fallout. Is that correct?

MR. JONAS: Yes, Mr. Thelin, with this proviso: underground fallout shelter does deliver some blast protection. To the best of our knowledge, in consultation with firms such as Stanford Research Institute and Rand Corporation, blast protection can be included in a fallout shelter for a very, very small added cost, and it seems to me that in metropolitan areas such as this, or in areas near to military targets, it should be considered.

CHAIRMAN THELIN: Do you find from your studies that there is any conflict between providing blast protection as opposed to fallout, or could one be readily modified to cover both if funds, etc., were available.

MR. JONAS: I think it is a relatively simple project to include them both. We are talking about a different type of door, we are talking about a different type of ventilation outlet, and a few structural changes, to make it include a degree of blast.

CHAIRMAN THELIN: So you would feel that very probably, if we started in one direction -- I mean by that, if we started building fallout shelters we probably -- no one can be certain, I know -- we would not have to reverse our field and start out something completely different to protect ourselves against blast and these other things.

MR. JONAS: I think that is a correct assumption.

CHAIRMAN THELIN: Now, you spoke on the survey of state buildings relative to what protection they now afford, or could afford in the future, does this stop there, or are we doing

something about the results of the survey?

MR. JONAS: Not as much as we could. We have run out of funds. We now know that some 12,000 people can be protected in Sacramento in State buildings. We know that many more thousands could be protected, with slight modification. The increase in the ventilation facilities, the blocking out of this window. There are no funds as yet for that. I think it might be worth considering. We also have failed to get any cost estimate on that at this time. Again, lack of funds, because to determine that cost is a rather expensive project.

CHAIRMAN THELIN: Well, let me ask you one more question. As I recall your remarks this morning, you stated that you found an aroused public interest in shelters at the present time, which I at least think is a natural reaction when we consider the tensions in the national situation, etc., but you feel this interest on the part of the public, or this enthusiasm, will be continuing enough to support a realistic state program, or do you think this is something that could dissipate away rapidly with a change in international conditions?

MR. JONAS: That is a very difficult question.

CHAIRMAN THELIN: It is a difficult question, I know, but of some importance, I think.

MR. JONAS: Yes. Quite honestly, I do not believe that the public was ever apathetic on this subject. I think they were confused and desperately in need of leadership from Washington, which they have just begun to receive. Therefore, I do not think they will ever retreat fully to the position before of that

degree of confusion and what appears as apathy. I do believe, though, that there will be relaxations in international tensions, and that not only the public but the legislatures of both state , local and federal levels will, perhaps, place less importance on the problem than they do today. And, this is one reason why I approve of the Federal direction of going in for multi-purpose or dual-purpose shelter. It seems to me that such a program would provide a fly-wheel to a program during relaxations in international tensions. We will need schools for many years to come. If these facilities can be built to include shelter, fine. We need community centers, as automation comes in and releases many more of our population for leisure time. The senior citizens need additional recreational facilities. These can be placed underground and provide a shelter. And such a program, I think, is less likely to be mecurial than one that simply digs holes in the ground.

CHAIRMAN THELIN: Well, I see. We will now have questions from the members of the committee.

I might interrupt at this point to note the presence at this time of Assemblyman Milton Marks, of San Francisco, on my right. He was unable to be here this morning because of legislative duties that took him elsewhere, and we are glad to have him with us now. Assemblyman Marks, I think has already got some questions.

ASSEMBLYMAN MILTON MARKS: I would like to say that the duties were related directly to this subject, Mr. Thelin. I am appearing before the Military and Veterans Affairs Committee on a bill of mine to permit the veterans to borrow money under

the Cal-Vet program for construction of bomb shelters, so it is directly related to this subject.

Possibly, these questions have been asked before, Mr. Thelin, and if they have, I hope you will interrupt me and say so.

I was wondering on this state shelter study committee, which has issued this brochure. How often does it meet, Mr. Jonas?

MR. JONAS: It met quite regularly in the preparation of this.

ASSEMBLYMAN MARKS: Is it still meeting?

MR. JONAS: Yes, it is.

ASSEMBLYMAN MARKS: On a regular basis?

MR. JONAS: No, just when called for some particular purpose.

ASSEMBLYMAN MARKS: Has any consideration been given to adding to it members of the Legislature?

MR. JONAS: No, there has not. It has been considered a Governor's Advisory Committee.

ASSEMBLYMAN MARKS: I am not critical, I am just curious to know, because I think I am very glad that you have such a committee in operation. One other thing I was curious to know - have you given this committee, or could you, if you have not already given it, an estimate of the cost of bomb shelters on an individual basis?

MR. JONAS: Yes. Mr. Marks, it is somewhat like the purchase of life insurance. A family can buy any degree of comfort or protection it wishes. It seems at the moment that

decision is up to him, rather than up to any other governing body. Dr. Willard Libby has built a shelter for his family in his backyard at a cost of some \$30. We have heard of shelters that have gone up to as high as \$30,000 for a family, for an individual. The booklet soon to be published by the Federal Government and sent to every householder in our nation will show how a \$100 or \$150 shelter meeting the most minimum standards can be built for \$100 to \$150 per person. This is the "A" frame, the lean-to, the hole under your house.

ASSEMBLYMAN MARKS: Would that be adequate to protect a person?

MR. JONAS: Most likely.

ASSEMBLYMAN MARKS: I mean unless it was a direct hit, which wouldn't protect anybody, I presume.

MR. JONAS: It is not likely to protect anyone, including the good Dr. Libby from a heavy radiation attack -- the 3,000 roentgens I mentioned before. I think it has an attenuation factor of 50, but you see that might be adequate, and if we could give every man, woman and child an attenuation factor of 50 in the State of California, it would make a difference in millions of lives.

ASSEMBLYMAN MARKS: Did you discuss in your testimony the question of whether or not it is advisable to have a program for both community and family shelters?

MR. JONAS: Yes.

ASSEMBLYMAN MARKS: And you indicated your approval of both?

MR. JONAS: There is a need for a complete system of shelters, because they would be more appropriate in one area than another.

ASSEMBLYMAN MARKS: We, of course, all hope that international tensions end, but assuming they do not, what is the degree of readiness of the State to meet an all-out nuclear war?

MR. JONAS: I would say, happily, that our State is years ahead of other states in this business of readiness. I am not talking about shelter, you understand. I am talking about the training of existing state employees in their disaster roles and functions, to constitute a hard corps of trained people. I am talking about the planning that has gone into disaster preparations. I am talking about the level of communications, disaster communications we have in our State.

ASSEMBLYMAN MARKS: Well, outside of those -- which I think is fine -- what about the citizens of California who are not part of that? To what extent has the State and the Federal Government responsibility if this holocaust which we certainly hope does not happen, does occur?

MR. JONAS: At this point, the only action taken on the state or federal levels has been to survey existing structures-- I said earlier that I thought this was a logical beginning for any shelter program. Find out what you have.

ASSEMBLYMAN MARKS: Well, was not a survey made a number of years ago on the same subject?

MR. JONAS: There was a survey in Contra Costa County.

ASSEMBLYMAN MARKS: Was not there one in San Francisco?

MR. JONAS: Not to my knowledge. I do not know what the results of that were. Admiral Cook is here and can probably testify on that.

ASSEMBLYMAN MARKS: I am not critical of you, because I think you are doing a good job with the facilities that you have at your command. I was just curious to know what you think is the present state of our preparation if this holocaust should occur, occur tomorrow, which I hope God forbid.

MR. JONAS: I would estimate that we have approximately a thousand family shelters in our State before the Presidential message on May 25th, and if I were to guess, I would say approximately a thousand family shelters are being built each month. However, this will hardly be adequate to protect the citizenry or any large percentage of the citizenry for years to come, and a program of community shelter, it seems to me, is a must within the near future.

ASSEMBLYMAN MARKS: Do you have any comments with reference to the plan announced by Supervisor Hahn of Los Angeles to institute a \$400,000,000 program for Los Angeles itself?

MR. JONAS: Yes, I mentioned his presentation of that, and also his alternatives that this be made a state program instead of a local program, that we either propose a bond issue, or that we divert one cent of the four cent tax, gasoline tax, if it is possible to do legislatively, from the highway program, for the construction of community shelter on rights-of-way.

ASSEMBLYMAN MARKS: Just let me ask you one more question and I will be through, Mr. Chairman. Could you make an estimate, and I know this might be hard, of what percentage of the people of California you would say presently are protected against fallout as of today? Either on a community basis or shelter basis, or a family shelter basis?

MR. JONAS: A very difficult question, Mr. Marks. I have stated that I thought that the survey would reveal protection for 15% of the population, and that survey will be well underway by May of next year, completed, hopefully, by December of next year.

ASSEMBLYMAN MARKS: 85% of the population would not be protected.

MR. JONAS: That would be my guess.

CHAIRMAN THELIN: Mr. Jonas, you mention a tax-incentive program for shelters. Do you know what is being done in other states in this regard? Have any of them had legislation of this type, and if so, how many and, generally, what are their nature?

MR. JONAS: I have received from Maryland and Oklahoma copies of their legislation, and it is a relatively simple tax incentive, allowing the increase in ad valorem tax to be tax exempt.

CHAIRMAN THELIN: Much the same as was suggested in legislation introduced this year, I assume.

MR. JONAS: Yes, with one exception. It was not permissive, and in several instances I found limitations placed

upon this to avoid abuses. For instance, a hundred dollars maximum per shelteree, as I recall, in one state. I cannot remember how many states have taken this legislation, but there is certainly over a dozen.

CHAIRMAN THELIN: Over a dozen states that have such plans and program in operation.

MR. JONAS: On the books, yes.

CHAIRMAN THELIN: Thank you very much. Assemblyman Wolfrum, do you have any questions?

ASSEMBLYMAN WOLFRUM: Yes. Mr. Jonas, I have been reading a Gallup Poll on this shelter problem, and it says that one family in thirteen is now giving serious thought or making plans to prepare their home against such a shelter, and the remainder -- nine out of ten U.S. households have not even taken this step. In view of this apparent apathy on the part of the American public, do you think at the present time we should get into a big shelter program? If this few, only less than 10% of the people are interested in shelter protection?

MR. JONAS: My own opinion, Mr. Wolfrum, is that the state should not get into a massive shelter construction program, community or otherwise. I feel that it is clearly a federal responsibility.

ASSEMBLYMAN WOLFRUM: Also in the Gallup Poll, a story here in one of the metropolitan newspapers in Los Angeles, on October 29th, states conflicting opinions by high authorities about the worth of fallout shelters have given some voters a pause. In other words, there is wonder as to what to build.

So, my question now follows, in view of the disagreement, or the apparent disagreement, among experts as to what type of shelters we should be building, whether we should concentrate on blast protection or fallout protection, do you think we are prepared at this time to establish guidelines for the shelter program in the State?

MR. JONAS: To establish guide-lines, yes, but to establish mandatory criteria or to launch a program of our own, I think not. The guide-lines could possibly be informative. You will hear testimony today, I see from your agenda, that will question the worth of fallout shelters. I personally do not agree with this. I think the worth of fallout shelters has been demonstrated. It is certainly recognized that a direct hit will not save lives in a fallout shelter. It is possible that we cannot even build blast shelters to protect against a ground zero attack, but we are dealing in the vast majority of the people who are apt to be outside of the radius of blast, heat, light, concussion, initial radiation, for whom blast or fallout shelter will make a tremendous difference, and I mean millions of lives in our state and nation.

ASSEMBLYMAN WOLFRUM: Is there an agreement that we cannot build a blast protection type of shelter within, say, three miles of ground zero?

MR. JONAS: No, actually. Again, it depends on whether you are talking about an air burst or a ground burst, but the community shelter built by the Navy Radiological Defense Laboratory at Camp Parks has a design factor to protect against

35 p.s.i. over-pressure, and I have been told that it can survive within that radius from the large megaton blast.

ASSEMBLYMAN WOLFRUM: Now, a question along the same line that was brought to my attention by this same newspaper article, deals with the subject of the organization of Civil Defense within the State, and I will read this paragraph to you and ask you to comment on it.

"The Governor's designated Civil Defense representative had to leave the phone for ten minutes to find out the name of the next man in the chain of command and the identity of the regional coordinator for the Los Angeles area."

Do we have information dissiminated in this state that would allow a person in the Civil Defense hierarchy, for example, to know who his next man above him was and the next man below him, so that this information -- at least, he should know who his alternate is, or his boss is, or who his subordinates are?

MR. JONAS: Mr. Wolfrum, I am not familiar with this article, but I would say that the hierarchy within Civil Defense officials is less important than one would suspect. The normal chains of command is that which is best for disaster. The President to the Governor, to the Chairman of the Board of Supervisors, to the Mayor or the Chairman of the City Council, or City Manager, whoever is in charge. Your Civil Defense personnel, certainly the members of my office, are advisory. We are staff. We are people to coordinate, to inform, to make preparations, rather than to substitute for civil government in a disaster.

ASSEMBLYMAN WOLFRUM: Well, I think you have evaded my question.

MR. JONAS: I did not mean to. Let us try again.

ASSEMBLYMAN WOLFRUM: What I am talking about is, do we have a table of organization in the Civilian Defense program in this State, so that people are aware -- at least those people in the program -- are aware of who they are responsible to? In the army table of organization, for example, you will have a major general or a lieutenant general up on top of the thing, everybody works up to him in a chain of command, so that he knows who he is responsible to and who he is subordinate to. Do we have this kind of setup in our State Civilian Defense system at this time?

MR. JONAS: Now, let me try to answer this as carefully as I can. In the Civil Defense System, if you are talking about the Civil Defense directors, those equivalent to myself on a local level, there is no chain of command, because there is no purpose in my issuing commands from a state level down to them except as it affects federal assistance programs and requirements to comply with matching funds. Each city or county designates a civil defense official. In many cases, he is a part-time employee, with other chores. These people are informed through our office, through periodical staff memorandums and communications, as to what is going on at the state level and what federal communications are to be passed along to them. It is that kind of loose organization. The Civil Defense organization that would be operational in a disaster is that which exists in state

government day to day. It is the Governor's --

ASSEMBLYMAN WOLFRUM: Well, this is in terms of your seven regional directors, for example?

MR. JONAS: No, the seven regional directors have no operational capacity or responsibility. They are coordinators, advisors, they may be delegated, under the present law, certain authorities by the Governor, but without that delegation the Governor is the person that would issue the orders in the State. These would be issued to the Boards of Supervisors and thence to the cities.

ASSEMBLYMAN WOLFRUM: I think that is all I have. Thanks.

CHAIRMAN THELIN: Mr. Rumford, do you wish to ask a few questions?

ASSEMBLYMAN RUMFORD: I have a few questions. One of the big questions, Mr. Jonas, that people have posed to us has been, what are we going to do about the great mass of people who cannot build shelters? What is the program for these people? I know you have suggested family shelters, and if so, is your organization going to ask for special session, and if so, again, are you going to have legislation to implement the program?

MR. JONAS: Well, for the great mass of people, the answer is not the family fallout shelter, Mr. Rumford, it is the community shelter. We have heard from the Governor that he is opposed to a special session; he has said this publicly. He is not, however, opposed to a special call during the Budget Session. In my own opinion, this was wise. The Federal Government, in the state of reorganization, is developing programs

that should be clarified by the first of the year, and at that time I think the Legislature will be in a better position to coordinate a state plan with what the Federal Government plans to do.

ASSEMBLYMAN RUMFORD: One other question. As long as we have the threat of a possibility of an atom bomb or greater, what are we revising or planning with reference to building, or is there any plan at all? Are we going to continue to build as we have built without the presence of the bomb which will be with us from now on apparently, or do we have any program in that direction?

MR. JONAS: We have no program in that direction. I will report that Governor Rockefeller has called a special session for December of this year. This time I think he means to make mandatory shelter construction by 1963. At least this was his thinking the last time we spoke. I am not sure that this is an appropriate program, that it will accomplish as much as other programs.

ASSEMBLYMAN RUMFORD: Inasmuch as we are thinking about building community shelters, has any thought been given to the possibility of using parkways under the freeways and utilizing this area if it is able to withhold or withstand a shock sufficient to take care of people?

MR. JONAS: Yes.

ASSEMBLYMAN RUMFORD: I am thinking that this could be used extensively in areas where they have skyways, and have you given it any thought?

MR. JONAS: Yes. Two words of warning that came up during our consideration of this site. One is that it might be cheaper to build shelter alongside of freeways than try to incorporate them under freeways, and make the concrete serve a dual purpose. Perhaps the shoring up of this appears to make both more expensive than to do them separately. And, the second is that one must consider very seriously the traffic congestion that might occur during a disaster, with people going to a freeway shelter. Provision, therefore, must be made for them to abandon their cars in such a way that they will not clog what may be very vital thoroughways at a later time.

ASSEMBLYMAN RUMFORD: Well, now, you mentioned what they might do. Now, how is this information being transmitted to the people? Do they know they are to abandon their cars, or how are they to know, or when are we to tell them?

MR. JONAS: There is not much we can tell them, Mr. Rumford, until we have the shelters. We can tell them this - what to do with what they have, and we have been asking people to look at their homes, their offices, their schools, their place of work, to find out that portion of the building that is best sheltered from the outside, be it an indoor corridor, or basement, and that is all we can do at the present time, Mr. Rumford.

ASSEMBLYMAN RUMFORD: That seems kind of loose to me. If we are to have a program, it seems to me that we are going to have a program with some definite direction.

MR. JONAS: Yes, and the answer seems to lie in a well-

thought out and planned program, rather than one that is based on panic and the usual failings of a crash program. I would like to see our state government walk the tightrope between these two extremes. The one we have seen so many years of apathy, and one in which we launch ill-considered plans, spending money without first finding out the best ways to spend it.

ASSEMBLYMAN RUMFORD: Is this in the period of formulation presently?

MR. JONAS: Yes --

ASSEMBLYMAN RUMFORD: When will this program evolve?

MR. JONAS: The planning and the investigation and the questioning and the testimony is being heard, but more money will be required to actually build and discover from actual construction what our costs, what can be accomplished, and what is the best way to do it.

ASSEMBLYMAN RUMFORD: Do you have the legal greenlight on most of these proposals, or do we need to enact legislation so that you can have the legal authority to move?

MR. JONAS: The legal authority to move in what direction?

ASSEMBLYMAN RUMFORD: The direction you feel is necessary for the defense and shelter of our citizenry.

MR. JONAS: Yes, I think we need additional legislation, but that legislation is really a request for funds to run a pilot study.

ASSEMBLYMAN RUMFORD: In other words, aside from the fact that you need funds, the little legislation we did get

facilitated to some degree an effort to utilize some area which might be used in case it was necessary.

MR. JONAS: Yes.

ASSEMBLYMAN RUMFORD: Now, is this the only legislation that we need?

MR. JONAS: No. I think each of the points I brought up this morning should be very seriously considered, Mr. Rumford. Including the priority of the shelter district.

CHAIRMAN THELIN: Mr. Marks has a question now, Mr. Jonas.

ASSEMBLYMAN MARKS: Mr. Jonas, you made a remark that sort of disturbs me. You are not the only one that made it. It has been made by others. You say that you feel that the responsibility is a federal responsibility, that the primary responsibility is the federal responsibility. Now, I realize that lots of sincere people make remarks about the morality of bomb shelters and other sincere people make arguments about the efficiency of bomb shelters. But, putting aside for a moment, if you can, those two arguments, and assuming that the bomb shelters are probably a proper thing to have, why is it that the State must wait until the Federal Government comes out with a program? I don't mean to wait completely, but why must the impetus only come from the Federal Government?

MR. JONAS: I think because the shelter of our population is not just a problem in California, because it is a national problem and part of our national defense posture. I see a very important achievement in having uniformity nationwide and in correlating with what our Federal Government is trying to do.

ASSEMBLYMAN MARKS: There are a lot of very sincere people who feel that the education of our children is a national responsibility, but many of those sincere people do not want the Federal Government to come in to take over that responsibility. This is something we should not get into on a hysterical basis, and I do not think anybody is, but isn't it a primary responsibility for the protection of the citizens of this State, the responsibility of the Legislators of the State and the public officials of the State? Isn't that our primary responsibility? It would be fine if the Federal Government does have a program, but, failing that, do we not have the responsibility?

MR. JONAS: Failing that, I think yes.

ASSEMBLYMAN MARKS: I gather then that there is a federal program. What is it?

MR. JONAS: It was described this morning, Mr. Marks, but very briefly it is to take the first step of surveying what we have.

ASSEMBLYMAN MARKS: But, why do we have to re-survey it? This problem has been in existence for many years. This office, of which you are the head, has been in existence for many years. Longer than before either of us were here.

MR. JONAS: Yes.

ASSEMBLYMAN MARKS: Why is it now that we start what should have been a step which I think should have been taken many years ago, the survey. Why do we now make a survey?

MR. JONAS: No survey has been made of the State of California, statewide of all public and private buildings. There

have been such surveys as the one Admiral Cook says has been committed, there has been one in Contra Costa financed by the Federal Government. We were halfway through one in Los Angeles, when the new Department of Defense setup was instituted. But, until just very recently, in fact, since May 25th, when the President said "This is important", had funds been available for such shelter surveys and shelter programs.

ASSEMBLYMAN MARKS: Well, what do we do -- if you have already touched this, I will read the transcript -- but what do we do while we are waiting for this survey to be completed? What do we -- I mean, Californians -- do?

MR. JONAS: I think we perform the necessary study to find out how best to spend the money when it does come from the Federal Government.

ASSEMBLYMAN MARKS: Well, let me ask you one other question, Mr. Jonas. These are not intended to be critical questions, so far as you are concerned. We -- our committee -- this same committee studied essentially the same subject one year ago, and I would venture to say that the testimony given here today and the testimony given one year ago is substantially the same. What has taken place since that time?

MR. JONAS: This was the essence of my remarks this morning, Mr. Marks, and I would hope that you would read the transcript and find it. I think considerable amount has occurred, and the recommendations contained in the booklet "Preparation For Survival", I hope, would be guide-lines for your thinking concerning legislative action.

ASSEMBLYMAN MARKS: Well, let me ask you one more question, because this particular point does disturb me, if we are going to talk about waiting. If this is necessary, and that is something that will have to be decided, and if it does serve a worthwhile purpose, but putting aside those two considerations, if it is necessary, when do we start doing something, failing the Federal Government taking constructive action, real constructive action.

MR. JONAS: I feel quite certain they will act at the next session of Congress. Failing in that, I think we might seriously consider action on our own. I find the analogy between education and shelter less appropriate than between shelter and our national, our military program.

ASSEMBLYMAN MARKS: I agree the military program is a federal responsibility and maybe the shelter program is basically a federal responsibility, it would be good to have them supervising it, but my question is if the Federal government doesn't do it, don't we have the responsibility to take action on our own?

MR. JONAS: I do believe so; I feel it is that important.

CHAIRMAN THELIN: There being no further questions, Mr. Jonas, we thank you for giving us your time today. We appreciate your being here a great deal.

Before we call the next witness, the chair would like to say for the benefit of witnesses here in the audience that we are not inviting testimony today on the broad, general question of whether or not we should have any shelters at all;

we covered that topic at a prior hearing and we had a great deal of testimony on it. What we are trying to do here today is to discuss what we should do in the shelter program; what is the best approach; what has been done, what kind and how, rather than the basic broad general question of whether or not we should have a shelter program or nothing.

The next witness is Dr. Robert R. Newell. Would you state your name and please into the mike and your affiliation and representation, please.

DR. ROBERT R. NEWELL: I am R.R. Newell, retired professor of radiology from Stanford University, and have been working for 4 years as resident consultant -- scientific consultant -- in the Naval Radiological Defense Laboratory here in San Francisco. I am a member of the Governor's Advisory Committee.

May I have three minutes to add something to what I gave you in regard to the first question of today's hearing, because I think that we are trying to make too much of small hazards in a time when we are surrounded by large ones. I think that, roughly speaking, radiologists aren't doing any harm with diagnostic radiations, and I would like to say that the really most intelligent thing for the state to do would be to load the whole responsibility of safety -- radiological safety in medical radiology -- on the conscience of the doctors and leave it there. And here is my statement: The state does now examine licensed physicians and surgeons and dentists. We have more than 50 years of experience of their use of x-ray equipment for diagnosis and treatment. The thing to do is to leave the

physicians and surgeons and dentists the responsibility for these uses of X-ray equipment. Supplementary licensing of the equipment is not necessary and not desirable. The exposure of the patient for his own good should be limited by the physician's and surgeon's judgment, not by the State. The physician and surgeon or dentist should be under the same statutory control as anyone else to limit the exposure of employees and other persons not for their own diagnosis or therapy.

Now I would like to go on with what I am being asked about, which is fallout shelters. State policy about fallout shelters should follow national policy because the important consideration about shelters is their effect on the chance of war. If a large war comes, a person's chance of survival will be 50 per cent, plus or minus 40 per cent, for a rough guess. National policy should be designed to reduce the chance of death to a lower figure than that. This is not to deny the usefulness of shelters. Given a large war, there will be a large number of persons for whom the availability of shelter will make the difference between death and life. The number depends upon the magnitude of the nuclear bombing and the efficiency of the shelter, but whatever the number, very many in a small attack, very few in a large attack, for those surviving the heat and blast and immediate radiation, even a 10 per cent radiation shelter will yield a good increase in the chance of survival.

It is of critical importance that if any shelters are

provided at all, the shelters in a given region or community be capacious and numerous enough to hold everybody. Until there are enough shelters to hold those who can come to them, each shelter will be a death trap due to overcrowding and suffocation. That is the criticism of the testimony which is printed and was available here and will be handed to you soon in regard to shelter districts -- a proposition to set up a shelter district and put up a shelter for those who are willing to go along with it and hope it will lead to the rest of the people who live near there seeing the light and building some more shelters. So, if you have this kind of a shelter district, with people here, there, and the other place agreeing to a district to build one shelter and they alone supposing that they had the right to this shelter, this is a psychological impossibility, to reserve a shelter for a particular person. At the time of war, if it comes, whoever can get there will get in if he can crowd in physically; and if there isn't enough room, they will be like sardines or chickens in a smothered heap. The consequence is that no district should be permitted to start building shelters until they can see their way through to build enough shelters for everybody that can reach the shelters.

ASSEMBLYMAN MARKS: Doctor, how many members are there on the Governor's Radiological Defense Advisory Committee?

DR. NEWELL: I didn't bring the list with me - half a dozen.

ASSEMBLYMAN MARKS: Half a dozen. Now, the view that you have given -- that unless we provide fallout shelters for everybody, that they will be caught like rats in a trap, or whatever your expression is -- is that the view of the Governor's Radiological Defense Advisory Committee or your view personally?

DR. NEWELL: This was my proposition to the hearing. We have only had one Governor's Advisory Committee meeting, and this is a proposition that I made to the Governor's Advisory Committee and the Governor at this time. The next meeting of the Advisory Committee will be next month and until that time you cannot have anything in the way of an agreed committee opinion. No division was taken on any question by the committee. No vote was taken within the committee; there is no such thing as a unanimous or agreed opinion by the Governor's Advisory Committee.

ASSEMBLYMAN MARKS: In other words, that unless you have sufficient shelters for everybody, you should have shelters for nobody?

DR. NEWELL: I think that you should not build shelters in any geographical district until you can see your way through to build enough shelters to hold everybody. This proposition was brought up in regard to designating shelter areas, and I am on a subcommittee to study further the matter of designating present structures as shelter areas. It was brought out that the federal recommendation would be that no place be designated as shelter area unless it has a high degree of radiation protection. My proposition would be -- and unless I come to

be persuaded otherwise, my present position is -- that it is better to have enough areas designated as shelters so that everybody can get into those areas, even though the protection should go down as low as 10 per cent protection.

ASSEMBLYMAN MARKS: If you couldn't do that, you still would feel that you shouldn't have shelters for a portion of a population?

DR. NEWELL: I think that shelters for a portion of the population would be an illusion, because if you can't get room enough for everybody to get into them, then people will crowd in anyway.

CHAIRMAN THELIN: You stated that you feel we should follow any federal policy, with which I think we can all agree; but let me ask you this: If the federal government is not moving, do you feel that the State should take the initiative and continue vigorously with a program of its own?

DR. NEWELL: I cannot say that I would so advise, because I do not believe that a shelter program is the advisory program. I do not believe that this is the place to put our hard work and attention. I have tried to say it that way by saying that, if we are putting up a shelter program, we are planning for a large war and planning for a 50 per cent survival; and I think that other routes should be looked to besides this, when the price that one is expected to pay is 50 percent chance of death. I think one should explore other routes which can be pursued unilaterally that might give a lower probability of death than that.

CHAIRMAN THELIN: Your criticism of shelter districts, would this not be valid against the individual or family shelter as well?

DR. NEWELL: No, because the individual or family shelter would not be expected to have any visible effect on international relationships.

CHAIRMAN THELIN: Well, you spoke of the community shelter being a trap because everybody is going to go over there and try to get in - don't you think the same thing would hold true in the family shelter?

DR. NEWELL: The advantage of the family shelter is probably its effect upon the morale of the individual; that he feels that he has a shelter and feels more contented in his mind. In fun -- shall I say, in fun -- I have advised my friends that if they do build themselves a shelter in their own basement, they ought to keep it secret.

ASSEMBLYMAN RUMFORD: It seems, Doctor, that you had an alternative plan, which you indicated - at least I gathered you might have; would you care to disclose to the committee what your thinking is with respect to survival.

DR. NEWELL: I am talking about international relationships. I am talking about trying to solve the problems of international anarchy, in which the only way we have to control relations with other nations is by treaties voluntarily entered into and in no way to force another nation to agree to any treaty at all. What I am driving at is: I do not believe all the possible ways besides one's own military strength -- I do

not think that the other possible ways have been explored as far as possible in regard to what unilateral action can be taken to make war extremely unlikely, and the price one would have to pay for such action. The most extreme one you know of, of course; but you told us not to argue this -

ASSEMBLYMAN RUMFORD: Well, I didn't know this was your philosophy; however, you are entitled to that. My next question, then: Is our Advisory Committee on Defense of the same opinion generally?

DR. NEWELL: Oh, I don't think so. In fact, I don't know that I am of this opinion, excepting only that I have not seen a research project. I have not seen sufficient research -- speculative investigation -- made of other possible ways of getting along in this world besides military strength.

ASSEMBLYMAN RUMFORD: Well, if this is our Advisory Committee, what hope is there then for those of the rest of us who are not on the committee?

DR. NEWELL: The Advisory Committee is not being asked to advise the Governor in this regard; and, if they did, it would be of no purpose, because the Governor has no authority whatever in international relations.

ASSEMBLYMAN RUMFORD: What is the Advisory Committee doing? What are they talking about?

DR. NEWELL: Advising him as to shelters; and I told you one thing that I would like to see us advise him would be -- I would like to see him take this advice -- that every public building, every place that one can find where there is room for

people to go with a penetration of radiation of only 10 per cent -- this is a 10 per cent shelter -- should be designated as a fallout shelter, presuming that at this level you could find enough room downtown and in most places, except in the outlying housing districts, you could find places that would hold everybody. And 10 per cent shelters, shall I say, are infinitely -- are very, very much better than no shelter at all.

ASSEMBLYMAN RUMFORD: How often does the Advisory Committee meet, Doctor?

DR. NEWELL: We are meeting again the 5th of December.

ASSEMBLYMAN RUMFORD: Where are they meeting?

DR. NEWELL: Here in San Francisco.

ASSEMBLYMAN RUMFORD: Is this open to members of the Legislature?

DR. NEWELL: No, I think this Advisory Committee meets just as the Advisory Committee now. At the meeting in Los Angeles, we invited in the Press for the morning meeting and other people were welcome to come in; but, in the afternoon meeting, we repaired to UCLA and had our meeting by ourselves.

ASSEMBLYMAN RUMFORD: It might be, Mr.Chairman, that some of us, at least the chairman, might want to meet with the Advisory Committee and find out what's going on.

CHAIRMAN THELIN: Perhaps we could ask our secretary to forward that request to the committee so we would have that information.

ASSEMBLYMAN MARKS: Mr.Chairman, under the Brown Act, Ralph M. Brown Act, aren't all meetings of all governmental agencies open to the public?

DR. NEWELL: I believe this is true -- that a meeting of any committee that is doing any public business is open to the public.

ASSEMBLYMAN MARKS: What are you doing if it isn't open to the public?

DR. NEWELL: There is a difference between having it open to the public and inviting the Press in.

ASSEMBLYMAN MARKS: I think perhaps it would be a good idea to have the Legislative Counsel's opinion as to whether these should be open to the public.

DR. NEWELL: You realize, don't you, Mr. Marks, you realize that it is almost impossible to do difficult business in the face and eyes of everybody?

ASSEMBLYMAN MARKS: I think it is difficult and I appreciate that, but I also think that the public business is public.

DR. NEWELL: I understand some school boards have gotten around this by having a get-together which they don't call a meeting before their meeting. Obviously, nothing can be done at such a preliminary meeting except the exchange of opinions and no business could be transacted.

ASSEMBLYMAN MARKS: If one happens in San Francisco, I would object to it. Maybe they are happening; but if they are, I certainly do object to it.

CHAIRMAN THELIN: Dr. Newell, who is the chairman of this Defense Advisory Committee?

DR. NEWELL: I didn't bring my dossier with me. He is a gentleman with whom I was not previously acquainted and his name has gone out of my head; he is, I think, a professor at UCLA.

CHAIRMAN THELIN: Well, we can get that information.

DR. NEWELL: I am sorry not to have it right with me.

CHAIRMAN THELIN: That is quite all right. Assemblyman Wolfrum has a question.

ASSEMBLYMAN WOLFRUM: Are you talking about the committee that put out this pamphlet, Doctor, the State Shelter Study Committee?

DR. NEWELL: No, our Advisory Committee has not put out anything. In fact, the minutes of the meeting have not yet reached me.

ASSEMBLYMAN WOLFRUM: Well, do we have half a dozen different groups studying the same problem? And going in no direction at all?

DR. NEWELL: This is the Governor's own Advisory Committee, appointed by the Governor; we have had one meeting in which we threshed out some of these questions and named several sub-committees which set out to study aspects of it; and our second meeting will be the 5th of December, here in San Francisco, and I can not give you any action on the part of the Committee. In the first place, it is an advisory committee which takes no action.

ASSEMBLYMAN WOLFRUM: What is this committee called - the one you are referring to?

DR. NEWELL: The Governor's Advisory Committee.

ASSEMBLYMAN WOLFRUM: On what?

DR. NEWELL: Radiological Defense Advisory Committee. This Committee is not set to take any action and, as a matter of fact,

in our first meeting, we did not put any question to a vote of the committee.

ASSEMBLYMAN WOLFRUM: So the opinions you are expressing here today are largely your own?

DR. NEWELL: Yes, and I have not put them forward as anything else except as my own.

CHAIRMAN THELIN: I guess that is all the questions we have today. Thank you, Dr. Newell for coming before us.

The next witness is Admiral Cook. Would you come forward, please, and state your name, affiliation and representation.

ADMIRAL ALBERT G. COOK, JR.: My name is Albert G. Cook, Jr. I am a Retired Rear Admiral, U.S. Navy; I am director of San Francisco Disaster Corp; I am a member of the Governor's California Counties and Cities Civil Defense Advisory Committee... This is a written statement, which I make available to the committee.

There is a tremendous amount of interest among responsible people on the question of shelter and what a family should do in the event of disaster. The "Recommended Family Plan" is still our basic recommendation, and, in my opinion, is the best advice we can give. We shall continue to distribute it.

As to shelter:

I believe that in the event of war the provision of shelter is vital to the survival of this country.

Basically, any shelter is better than none. The better the shelter the more protection afforded. It is practicable to build a shelter that will give protection from a five megaton

weapon within one and half miles of ground zero.

The Federal Government is recommending fallout shelters as opposed to those for blast and heat because they provide protection for the most people at the lowest cost. This policy was established in the Eisenhower Administration. A degree of protection from blast and heat can be obtained at very little extra cost. This I recommend for shelters in San Francisco.

The question of whether community shelters at government expense or individual shelters at the owner's expense should be built and the method of financing are matters of policy outside the jurisdiction of my office.

I believe that the cheapest and most satisfactory way of building shelters is to have responsible local people familiar with local conditions do the work.

My office does supply technical information on the building of shelters. We do not recommend any commercial product or particular contractor.

We have had over four thousand requests for technical information on shelter construction in the past three months, one thousand of them in the past two weeks. These requests we have filled. It is my personal opinion that the following tasks must be accomplished. Your Committee is in a better position than I to determine HOW they can best be accomplished.

1. Bring authentic information to the people on:

What problems and possibilities this country faces.

What they can do to improve their and the chances of the nation to survive in the unhappy event of an attack.

This will require positive action by the President and the Congress. Perhaps a resolution from the State Legislature might help.

2. A clear Federal policy on shelters for people in critical target areas.

In my opinion:

These shelters should be the community type.

These shelters should give protection from blast and heat as well as fallout.

Should be so financed that protection is available to all.

3. Where the individual decides to build his own shelter. I believe that:

- (a) Standards of construction should be set and where these standards are met some incentive taxwise should be granted.

- (b) No increase in assessments for shelters used for emergency purposes only.

- (c) Plans for shelters should be prepared and made available at lowest possible cost in such form that a building permit should be issued.

- (d) Simplify procedures for obtaining building permit but insure that plans are sound structurally.

CHAIRMAN THELIN: Does that conclude your remarks, Admiral Cook? I wonder, do you happen to know who is the chairman of the Governor's Radiological Defense Advisory Committee?

ADMIRAL COOK: No, I do not.

CHAIRMAN THELIN: You mention that in your opinion, standards

should be set for these shelters; do you mean by that that there should be mandatory standards that must be met or the shelters will not be permitted?

ADMIRAL COOK: I use that term in connection with a tax incentive, I think.

CHAIRMAN THELIN: I see.

ADMIRAL COOK: And if they go to get the tax incentive, yes, then there should be mandatory standards; in order to get a tax reduction or any tax benefit, they should meet certain standards.

CHAIRMAN THELIN: These standards, of course, would be set by the State if you are talking about a tax set up?

ADMIRAL COOK: I think that would be the best way of doing it, yes, sir.

CHAIRMAN THELIN: Any questions from any members of the Committee? Assemblyman Rumford.

ASSEMBLYMAN RUMFORD: Inasmuch as we need as much information correlated as we possibly can get, do you feel that in the hierarchy as expressed by Mr. Wolfrum, we should better utilize the information and direction of the defense program than we have at the present time? Do you have any suggestions on that?

ADMIRAL COOK: If I understand the question correctly, do you agree we could make better use of the information that is available all up and down the line?

ASSEMBLYMAN RUMFORD: So we know what you are doing; you have a responsible position and yet we find you are not informed

that there is apparently a committee functioning with other powers of great latitude and other committees also.

ADMIRAL COOK: Generally speaking, I have found my communications with State authorities and my liaison with them and operations with them, and with the federal authorities, entirely satisfactory; this happens to be an advisory committee to the Governor on highly technical matters. I did know and am quite familiar with the work of Dr. Bellamy when he was in that committee and with the other people who were formerly on this committee; who the new chairman is I am not familiar with. As a matter of fact I have attended meetings of those committees several years ago. I do think they could be better, to answer your questions directly, yes. It has been good, but I would like to see it much better; I would like to see a State agency set up to correlate all the information that is available and make it available directly. I spend an awful lot of time looking for information on subjects that should be sent to me.

ASSEMBLYMAN RUMFORD: Yes, well this is what I had in mind. So that other areas might benefit from your experience, there should be a forum of discussion as to what direction we are going and not have areas going off in all directions.

ADMIRAL COOK: We do have in the Bay Area an excellent, informal, interchange of information, but I would like to see it more formalized in a manner of course, not something that you have to go out and look for yourself.

ASSEMBLYMAN MARKS: I don't have a question, I just want to say that in San Francisco, I think you are doing a fine job.

I think there is an agency, Admiral headed by Mr. Grendon. Isn't that the agency that is supposed to coordinate the information with reference to radiation protection.

ADMIRAL COOK: I didn't catch the name, sir.

ASSEMBLYMAN MARKS: Colonel Grendon, he is sitting in the audience.

ADMIRAL COOK: The State does supply us with information - I don't want to be misunderstood on this, but there are many developments going on all the time. For instance, there was a very interesting booklet in great detail, published on the building of community shelters, that was published by the Department of Commerce. I just happened to find out about it by accident and tried to buy five copies of it - a very valuable booklet and it was out of print. I was able to get two. There was a very valuable booklet on some experimental work that has been done on heat protection in shelters from fire; that was published by the Division of Forestry, the Federal government. I managed to get one. It is things of that sort.

ASSEMBLYMAN MARKS: I understand your point, I was just wondering whether or not this agency which I know has problems not directly related to the subject, disseminates certain information to you which has some relationship to your functions.

ADMIRAL COOK: This is a personal observation if I may make it, sir, if it is appropriate. I think the State agency has done a marvelous job in civil defense with the amount of

money they have had to work with. This correlation of information and so forth requires funds.

ASSEMBLYMAN MARKS: I am not critical of them, or of you either. One other question - I asked Mr. Jonas a question concerning the extent of protection of the citizens of California if disaster should occur and his answer was that he felt the survey they were taking would indicate that possibly 15 per cent of the people of California would be protected from such disaster. I am personally interested in this and I am sure other members would be interested as to protection as far as San Francisco is concerned.

ADMIRAL COOK: We made a survey of existing buildings. I had to operate without any funds. I got a list of all the Class A and B buildings from the Fire Underwriting Bureau in San Francisco, and a committee from the structural engineers, the Association of Architects, drew up for me standards that they thought should be met. There was no federal guidance at this time. In '50 and '51, and they drew up a set of standards and we started inspecting these buildings and inspected some 2300 of them. Now, our building inspection differed from the federal in several respects; in the first place, we were looking for shelters that would give a degree of protection from heat and blast as well as fallout; we did not undertake to determine how they could be improved; we did not undertake to stock them with food and water. We decided on a figure of 500; in other words, if the place offered shelter for 500 or more people in addition to the people who

are normally there, then we designated it a public shelter and there are 116 such places so designated in San Francisco today. They can not be truly called shelters - they are potential shelter areas, but it would be far better if anything happened tomorrow, to answer your question directly, that people got into those shelters than to stay outside and face absolute total destruction.

ASSEMBLYMAN MARKS: That is about 53,000, if my arithmetic is correct.

ADMIRAL COOK: Well, that is a figure not including many, many, many buildings in town in which we indicated to the people who are normally there that this is a good shelter area and you people who are normally in this building should take advantage of this shelter should anything occur.

ASSEMBLYMAN MARKS: I know this is a difficult question to answer, but would you say the percentage is higher in San Francisco than the percentage of Mr. Jonas on a state-wide level?

ADMIRAL COOK: Much higher. I would like to point out to you, sir, that we are a relatively small geographic area and while we have in the day time a population of about 1,025,000, 525,000 of those people are concentrated in the daytime right in a small downtown area. Now, in that downtown area, it is my opinion that there is adequate shelter for everybody that is there in the daytime and at night there are only 103,000 people there.

ASSEMBLYMAN MARKS: One more question - I hate to start asking questions relating to this area, but I think it has a

relationship to all of California, I read in the papers recently that in the event of a disaster of this kind, the Bay Bridge would be closed to traffic. Am I correct in this, and if so, why?

ADMIRAL COOK: That is a part of the state plan agreed to by all civil defense directors in the Bay Area. Now, we are talking about the Bay Bridge, not the Golden Gate Bridge. The combined population of Alameda, Oakland, Piedmont, Berkeley, and the other cities on the East Bay is greater than that of San Francisco; they have fewer ways of getting out actually, than we do. In the event of disaster it would simply be a waste of time for anybody to try to go from one side to the other. Actually, in the event of disaster instead of people trying to leave downtown San Francisco and go home, the sensible thing to do at this present moment would be for the families to try to come down town and get in those buildings.

ASSEMBLYMAN MARKS: In leaving town, you include the Golden Gate Bridge also?

ADMIRAL COOK: It would just be compounding a terrible traffic situation that exists already, by sending people from this side over there or people from that side over here.

ASSEMBLYMAN MARKS: Does this mean that you feel that a program of evacuation should not be carried out?

ADMIRAL COOK: No, not at all. Under present California policy, if we have one hour's notice or more, the alert signal is blown; there is no conflict between the policy of evacuation and shelter - the two things are complementary. If you have time, then the thing to do is to get out of the critical target

area, provided you have arranged a place to go, you have arranged for a place to stay and you have some shelter from fallout when you get there. Now, the reason I would hesitate to do that, is this, in our area, our residential area, we have for all intents and purposes no shelter whatever, except for the Park Merced Tower Buildings, the Stonestown Mall, underground there and the tunnels. The average automobile is just as good a shelter as is the average frame house and you would be just as safe from heat and blast and radioactive fallout in an automobile on the road as you would be in a frame house.

CHAIRMAN THELIN: Are there any further questions?
Apparently not, Admiral Cook. Thank you for your testimony.

Our next witness is Mr. John M. R. Hope. Mr. Hope, will you come forward please. Please state your name, affiliation and representation in the mike, please.

MR. JOHN M.R. HOPE: My name is John Hope and I am Chief Administrative Officer for the City of Los Altos. I am here today to present a statement on behalf of Mayor Dunnett of the City of Los Altos who is in the east.

Gentlemen: Due to my having to go east on business I have requested our Chief Administrative Officer, John M. R. Hope, to represent the City of Los Altos at your Committee Hearing in San Francisco on November 7 to present the following information and recommendations.

1. On October 16 through 20 the 10th Annual Conference of the United States Civil Defense Council was held in Los

Angeles and the proceedings were recorded. Transcriptions will be available and it is recommended that the Committee obtain and review them.

2. The most complete study, to our knowledge, on community shelters was made by the U.S. Naval Radiological Defense Laboratory in their TR-366 report which is available through the Office of Technical Services of the U.S. Department of Commerce. It is heartily recommended that the Committee obtain copies of the report and review them.

In this regard, Mr. Chairman, I do have a copy of this report with me. I might point out that the shelter system described therein provides for a blast over pressure of 35 PSI and attenuation factor of 1,000 and the ability to button up in a situation of a fire storm for 24 hours. I want also to point out the report is dated 6 October 1959, and we did not know of the existence of this report until early September when we obtained copies.

3. The City of Los Altos is embarking upon a program of encouraging the construction of Community Shelters (100 person-25 family) described in the above cited USNRDL - TR-366 report. The Shelters are to be financed by assessment district pursuant to an amendment made in the 1911 Act by the 1961 Legislature. One such set of proceedings was initiated on September 19 and we expect to go to bid on that shelter within three or four weeks.

The program is described in the draft of the "Dear Mrs. Householder" letter.

We believe that this program offers the most practical solution to the following problems which face the individual homeowner:

A. Economy.

The community shelter for 100 persons is large enough to be able to offer certain amenities without too great a financial burden upon the individual family. By this we mean auxiliary power generator, radio equipment, radiological monitoring devices, air conditioning, etc. At the same time, the shelter is not so large (or designed to serve so large an area) that its management becomes too difficult or that it is too far away.

B. Engineering and Construction.

The problems facing each family desiring to construct an individual shelter in the matter of engineering and construction are enormous. What kind? How to build? What about these "package" jobs? How do I get bids? etc. The City is presently having a shelter (a pilot model) engineered pursuant to NRDL specifications and the final plans will be subject to the approval of the State Disaster Office.

The City will then call for competitive, sealed bids from qualified contractors, let the contract to the lowest bidder, and inspect the construction at each stage. When completed and accepted, the shelter will be "ready to go" and completely equipped including food, water, fuel for generator, etc.

C. Financing.

The assessment district method of financing will be attractive to many families. The proceedings provide that those who desire to pay their share of the cost (their assessment) in cash may do so, while the City will call for sealed bids on the bonds representing the unpaid assessments. Those who choose not to pay cash can then pay their assessments over a 10 or 15 year period, and in the case of a 15 year period will be in the order of \$10.00 a year or less than \$10.00 a month.

D. Location of Shelter.

Since the shelters will be constructed by the City, all or part of any shelter may be constructed within City streets.

E. Taxation of the Shelters.

The shelter will be owned by the City, hence will be exempt from property taxes. The City, however, will lease the shelters to the property owners assessed for it. Thus assuring that the shelter, as far as practicable will be reserved for those who paid for it.

F. Maintenance of the Shelter

The participating property owners (lessees) will be required to maintain the shelter, particularly its foodstuffs. Periodically, the shelter will be used for instructional purposes (in survival) at which time an inspection will be made to assure that the shelter is "ready to go". If maintenance is not kept up, the City will probably do so, assessing the costs to the benefiting properties.

Incidentally, I might say here this is a draft of a letter we are using in response to inquiries and we go on in that vein.

You inquired as to the steps you should take to have such a shelter constructed in your neighborhood. The City Engineer will prepare a petition for you requesting that the appropriate proceedings be initiated. At the same time, he will describe the boundaries of the "benefited" properties so that a logical area can be used. When you have circulated the petition and returned it with the signatures of the owners of not less than 60% of the area, the City can then begin the proceedings.

We will, of course, use the same set of plans referred to above in item "B", re-engineering them only for exterior details such as entranceway, location and topography. Thus engineering costs will be minimized after this first pilot model. In each case, the final plans will be approved by the State Disaster Office.

After we have received bids on the pilot model, we will be able to give you a more precise estimate of cost, but as of this time, we are anticipating a total cost (including equipment, furniture, foodstuffs, etc.) in the order of \$30,000, with individual assessments approximating \$1200 per family.

To go on then with the Mayor's report: If the Committee wishes further details on our program, we will be happy to supply you with further information. In any case, as our program

develops and further written materials are prepared, we will be pleased to submit copies to the Committee.

4. In our "Dear Mrs. Householder" letter we estimated the cost of the shelter, including engineering, legal, land acquisition (easement), etc., at \$30,000 or \$1200 per family. We hope in later projects to reduce these costs. However, there are many very low (per person) estimates floating around, all of which presuppose very large shelters, no engineering or legal costs and ideal conditions. We believe that these estimates tend to undermine public confidence in more reliable and realistic estimates to the detriment of our program.

5. In the matter of surveying the availability of shelter space in existing private or public buildings, please be advised that Los Altos has already done so. There is NOT A SINGLE SUITABLE STRUCTURE IN Los Altos.

6. We recommend that legislation be adopted such as to allow State Income Tax deductions on assessment payments for Fallout Shelters and that the State recommend that the Federal Government allow such deduction on the Federal Income Tax.

7. We recommend that legislation be adopted so as to exempt assessment proceedings for Fallout Shelters from the necessity to take proceedings under Division 4 of the Streets and Highways Code. This will allow a City Council to initiate the assessment proceedings without the necessity of the ancillary proceeding under the "31 District Investigation Act. This procedure is presently available to us for Sanitary Sewers

upon receipt of a certificate from the County Health Officer. If such can be done it will not avoid or waive the usual protest hearing, but will speed up the proceedings and save legal and procedural costs.

In addition, the Committee may be aware that a City Council (by 4/5ths vote) is empowered to override a majority protest in assessment proceedings for the construction of Sanitary Sewers or Storm Drains, presumably under the doctrine of Public Health, Welfare, etc. The legislature might want to grant City Councils such power in the case of Fallout Shelters.

8. We recommend that legislation be adopted to allow shelter sites when acquired via eminent domain proceedings to be acquired via "order of immediate possession" as municipalities are able to do in connection with sewer and storm drain easements, rather than having to wait for the normal eminent domain proceedings to run their course.

9. We recommend that legislation be adopted to reduce the 2/3rds vote requirement for General Obligation Bonds for Community Fallout Shelters. The legislature has been discussing the general question of the 2/3rds vote requirement for some years. Los Altos lost a Bond issue for sanitary sewers on October 17 by nine (9) votes, hence we are sensitive to the requirement. Might this not be the time to review the situation, particularly with regard to Fallout Shelters?

10. We recommend that legislation be adopted to curb the operation of the "Suede Shoe Boys" in this field. Human

life is involved! Minimum standards should be adopted for individual family Fallout Shelters and contractors attempting to sell same without State approval of the design should be subject to prosecution.

11. We recommend that legislation be adopted to allow Cities and Counties to require that Fallout Shelters be built in new subdivision just as streets and other improvements are required. In subdivisions too small to require the construction of 25 Family Shelters, the City or County should be allowed to require deposits or payments in lieu, to be held in trust to finance the small subdivision's share in a large shelter.

12. We recommend that legislation be adopted to increase the ability of Cities and School Districts to finance fallout shelters. This might take the form of:

- (a) legislation allowing the jurisdiction to levy taxes for Fallout Shelter purposes over the jurisdiction's statutory tax limit.
- (b) legislation allowing the jurisdiction to incur debts for Fallout Shelter purposes over the statutory debt limitation.

13. We recommend that legislation be adopted to direct the installation by the power companies of NEAR (National Emergency Alarm Repeater) apparatus at once at the same time allowing the power companies to amortize the cost of the equipment through their normal billing procedures.

In addition the State could enact legislation to allow other kinds of local public agencies (i.e. Fire Districts,

Police Districts, Extended County Services Districts, etc.) to build and operate Fallout Shelters and to exercise the financial powers of Cities, for instance, to accomplish same. By this we mean, for example, to allow a Fire District to set up assessment districts or to vote General Obligation Bonds for Fallout Shelters.

The official family of the City of Los Altos believes that a vigorous and effective Fallout Shelter program is essential for the survival of individuals and for our nation. We believe that for the purpose of your hearing on November 7 was to search out means whereby the legislature could help. Hence the above suggestions are offered in that spirit. We are proceeding with our program under existing law and we believe that we can accomplish much of our program under existing law. However, we believe that the adoption of any or all of our recommendations would serve to expedite our program or parallel programs of other jurisdictions!

We stand ready to assist the Committee in any way possible.

Yours very truly,

Roy L. Dunnett
Mayor

CHAIRMAN THELIN: Does that conclude your statement? It was read so quickly that I am afraid I probably missed some of this. Is this program, this Los Altos Plan, is it in effect right now, or is this something you are putting in effect?

MR. HOPE: The first such shelter will go to bid within 3 weeks; the proceedings were initiated on September 19 for the

first of such shelters. Now then, to us, 25 families equates to approximately 8 acres. Our planning department is presently gridding the city in 8 acre grids and using this as a basis will then modify the grids to provide logical and neighborhood groupings and when people come in at the present time for shelters or express interest, we will prepare petitions based upon these boundaries, which will be logical.

CHAIRMAN THELIN: When did you start mailing out these householder letters?

MR. HOPE: The purpose of the householder letter at the present time is in response to inquiries. We propose, however, once we have received the bids on this first shelter, which will be a month and a half hence, and we have more precise cost estimates, then we will circulate the entire town with this letter.

CHAIRMAN THELIN: What kind of reaction are you getting from your citizens? Are they interested in this?

MR. HOPE: Quite.

CHAIRMAN THELIN: Did you say you feel you can use the procedure of eminent domain to secure land for this purpose or is this something you are asking legislation to accomplish?

MR. HOPE: We believe we can secure the land via eminent domain for this purpose; however, it would require that the eminent domain proceedings run the full course. In many cases, for instance for sewer easements, we can go into court with a certified copy of our appraisal and a certified check in that amount and acquire immediate possession to start work and then

settle the matter later either through negotiation or else by the full eminent domain proceedings.

CHAIRMAN THELIN: What protection factor are you providing in your shelters?

MR. HOPE: An attenuation factor of 1,000 - that is, 3,000 roentgens, the effective dosage would be three roentgens. A blast-over pressure of 35 PSI.

CHAIRMAN THELIN: So your shelters are aimed at protecting for blast as well as fallout?

MR. HOPE: The primary purpose is fallout, but the additional blast protection comes right along with it. The community - with this particular shelter system, the ability to withstand the blast-over pressure relates to whether or not the structure is buried or not, and in Los Altos, it will be buried and completely flush with the ground. It relates to whether or not the vent structure retracts or not, and it will be retractable in our case; and it relates to the nature of the entrance doorway. And the difference between a 10 PSI shelter and a 35 PSI shelter is dimensions insofar as cost is concerned.

CHAIRMAN THELIN: What do you do about ventilation in your shelters?

MR. HOPE: The shelter is equipped with a generator providing electric power which operates a ventilation system through a mine safety apparatus company filter and an air cooling system at the back end.

CHAIRMAN THELIN: Do the schools have any special part in your plan?

MR. HOPE: At the present time, they do not, sir. This is our plan as opposed to Livermore's. Strictly on an odds situation, the odds are six and a half to one that the child would be home rather than be in school, judging just by the number of hours in the day and the number of hours in the year, Saturdays and Sundays and so on - we believe, even if the atomic incident did occur during school hours, it would be easier to get the kids home than to get everybody converging on the school.

CHAIRMAN THELIN: Thank you. Are there any questions from members of the Committee? Mr. Wolfrum.

ASSEMBLYMAN WOLFRUM: What is the size of Los Altos?

MR. HOPE: About five and a half, sir.

ASSEMBLYMAN WOLFRUM: About five and a half square miles.

MR. HOPE: A population of about 20,000.

CHAIRMAN THELIN: Do you have any further questions, Mr. Wolfrum?

ASSEMBLYMAN WOLFRUM: On what basis did you design your plans? Was this the Federal level or the State level standards? How did you come to the conclusion, for example, that this is the type of shelter that you want to build? Is this pioneer thinking or...

MR. HOPE: No. The entire shelter system is, engineering-wise, all laid out in this NRDLTR 366 Report which includes the specifications, drawings for the entire system.

ASSEMBLYMAN WOLFRUM: When was this report published?

MR. HOPE: This report was published 6 October 1959. It

did not come into our possession, or we did not know of it until, I guess, late August and ordered copies; and they reached us early September.

ASSEMBLYMAN WOLFRUM: I have done considerable reading on this, and it seems even among the experts there is considerable disagreement as to what kind of protection you need and what you are preparing for. I just wondered - you based your program on this particular report?

MR. HOPE: Yes. This is the only authoritative thing we have seen.

CHAIRMAN THELIN: Who put out this report?

MR. HOPE: This report ...Apparently the Office of Technical Services of the U.S. Department of Commerce contracted with the U.S. Naval Radiological Defense Laboratory at Hunters Point to prepare this specifications and costs of a standardized series of fallout shelters to prepare this report, and the report was available through the Department of Commerce.

CHAIRMAN THELIN: I see. Assemblyman Rumford has some questions.

ASSEMBLYMAN RUMFORD: My only point here is that you are constructing the shelter under this change in the Highway Act of 1911.

MR. HOPE: Yes, sir.

ASSEMBLYMAN RUMFORD: You might be interested in an opinion that we secured from our Legislative Counsel with reference to restriction or the possibility of restricting the amount a person is able to use this shelter within the meaning of the

law. I think it wise, Mrs. Nance, if we furnished Mr. Hope with a copy of this opinion. You can hardly detect what it is, but I think it has broad significance.

CHAIRMAN THELIN: Mr. Marks, do you have some questions?

ASSEMBLYMAN MARKS: I just want to ask one question.

CHAIRMAN THELIN: Mr. Marks has one question.

ASSEMBLYMAN MARKS: NRDL, I think you called it...

MR. HOPE: Naval Radiological Defense Laboratory.

ASSEMBLYMAN MARKS: Is that available for public distribution?

MR. HOPE: Yes, I bought it for \$3.00 from the U.S. Department of Commerce. I ordered two of them, and we have made so much of them, I have ordered another dozen; but I understand it is out of print now.

ASSEMBLYMAN MARKS: Then it is not available?

MR. HOPE: Well, I have sent in a city check or purchase order for that amount. I have not heard from them yet.

CHAIRMAN THELIN: Thank you very much, Mr. Hope. Our next witness is Mr. W.H. Parness. Mr. Parness, will you come forward, please? May we have your name and affiliation for the purposes of the record?

MR. WILLIAM PARNES: Mr. Chairman and gentlemen, my name is William Parness, City Manager and Director of Civil Defense for the City of Livermore. Livermore is a general law city, for those who may not know, located about 50 miles east of San Francisco. It has an area of about 5 1/3 square miles and a population of about 18,000 people.

Our interest in civil defense arose about a year and a half ago, and since that time, we have been somewhat in the forefront, from news releases and from the interest of other communities and jurisdictions about our progress. We are proud of it, and we hope that we are going to accomplish something that will be worthwhile on a state level. One thing, to preface my remarks, and I would like to show you some things that we have prepared in our city that we use in discussions of this topic to other interested groups; and with your permission, I would like to describe them. Last April our community participated in OPL 61 the test exercise nationally. The results of that test and the effects that it had on our city due to a stimulated attack are quite interesting, I believe. At least, they are found to be somewhat interesting to people that view them. These charts were prepared by our radiological section of our civil defense organization, and I think depict what might have happened to our community in the event such disaster would have occurred as the kind the state visualized in this test. This is a map which shows the central part of the state entitled "strike data". Now, this information was undisclosed to us prior to the test, but at an appointed time, the envelope was opened, and we were able to tell what had occurred in a simulated attack. You will notice that four strategic air command bases were hit by nuclear weapons - Beale Air Force Base, McClellan, Travis and Castle. They all had from one to three detonations each at the size listed there in the megaton range, and the time is given at which time the explosion took place. Now, the next chart shows

actually what would have happened to our community with this type of a nuclear attack with the given weather conditions that were in effect at the time. Of course, this is extremely important in computing radiological fallout upon an area. The lines, the legend to your right indicates the roentgen or dosage of fallout per hour starting with one-tenth, the green line, all the way up to 500 roentgens per hour which is the red line. We would have something close to about a 450 or a 500 roentgen dosage per hour due to the strike data that is shown on the map that we have just shown. Now, this is what this would have meant to the citizenry of our community. In a three-day term, with the consumption of this many roentgens, the lower graph, the green line shows how many roentgens would have occurred to a person situated in the basement of a two-story house which has a shielding factor of about 20. They would have absorbed something a little over 50 roentgens and would have meant that about two per cent of those people would have become quite ill. Those that were in the central part of a one-story house having a shielding factor of about two would have absorbed close to 600 roentgens, and the legend on the left indicates what that would have resulted in. It would have meant that about 95 per cent would have died within two to three weeks. Those that were completely unprotected on the outside would have absorbed over a thousand roentgens and, of course, it would have meant 100 per cent fatalities. This is an actual condition that would have occurred in the event of a nuclear disaster of the kind that the state disclosed to us in our test.

Now, our interest in civil defense really came into being about a year and a half ago. The reasons for that, I think, are attributable primarily, to two factors. First of all, of course, was the sudden rise in international tensions, and this had its effect throughout our country. But, secondly, and maybe more important from our standpoint, is the vast amount of cooperation and volunteer assistance which we are able to obtain from a very important part of our community, the radiological laboratories. These laboratories have a combined employment of about 5,000 people, and they consist, to a great extent, of a lot of internationally recognized technicians, physicists, engineers, who are very concerned about this topic, who know what they are talking about when they speak in reference to it and are very willing and anxious to volunteer their services on our behalf since many of them live in our community.

Now, at their urging and at the urging of our local civil defense office, our City Council appointed a Citizens Committee last August, and they gave them the assigned task of preparing a report on fallout shelters. This Committee consisted of ten men, and it was comprised of nuclear physicists, radiological technicians, chemical engineers. We had a hospital administrator, a school administrator, building inspector and our own staff representatives. They spent eight months in concentrated study on this topic meeting weekly, and as a lay committee, I think they produced an excellent product. This report, has been distributed widely, and I have copies for you. We have gotten wonderful response. We have sent out over 2400 copies of this

all over the nation. When the cities in the east have heard about our program, it is amazing the inquiries that we receive. They have done an excellent job for a lay committee.

The report contained one recommendation that was not followed promptly, I guess promptly enough, by our City Council, and that had reference to the study of the feasibility of community type fallout shelters as distinguished from the private or home type. One of the original members of this committee, when he found that the city, to his way of thinking, was not acting on this specific recommendation decided to do something about it and so, with half a dozen of his friends, prepared an informal petition that had no legal effect, that was not binding upon the Council but merely wished to express public sentiment on this topic. They spent about a month circulating that petition in our community, and they did not get to the entire city, only a portion of it, but in a month's time, they were able to enlist about 3700 names out a total registration of voters of about 5500. This is a significant response of public interest on this topic. They tell me that they had about a 10 per cent rejection of it from those that they talked to.

When word was released that this petition was to be filed with our Council, of course, all of the news media became interested; and at that public Council meeting, it was something to see, a real dramatic and melodramatic affair. We had three television stations and a couple of radio stations and a couple of dozen newspaper photographers taking pictures of this, and it was quite an event. The outcome of it was that the Council instructed the staff to prepare a feasibility report on the subject of public

fallout shelters. I reported to the Council at that time that it would take us about three months to get the necessary information together, and so my deadline is about December 20th of this year. We are now engaged in that study.

I would like to relate to you the general subject matters that it will contain. Those are shown on this sheet here. Number one will be the radiological matter; that is, we wanted to find what the problem is as it affects the City of Livermore. Two is the sociological aspects, an extremely important part of this whole problem, sociological or human problems involved in sheltering people. Third is the survey of existing shelters. We, of course, are going to be too late for the Federal survey. We are doing this ourselves, and we are not holding out too many hopes for what we can find in our community. Fourth is the population and location study. Where are we going to put these things with regard to who is going to use them. Fifth is the engineering and cost, extremely important. What are they going to be designed of, how are they going to be designed architecturally and from an engineering standpoint, and how much are they going to cost us. There are various engineering designs that have been suggested, but we are looking at them all. Next is a shelter floor plan. What are these things going to look like. How are they going to be segregated from a floor plan standpoint.

Seventh is the multiple use, and I just want to briefly digress here a minute by emphasizing as much as I can this factor of multiple use. I personally am convinced, and I think the majority of our officials are convinced, that unless we can

contrive means and methods by which public shelters, if they are to be built, can be used for a multiplicity of purposes, I do not believe that the public is going to buy them. I cannot believe that the average citizen is going to want to spend a significant amount of money to bury these things in the ground with the idea that they may only have to be used in the event of an extreme emergency. Unless we can compose and put into practice dual usages for these type of things, I think that we are wasting our time, and I am sorry to say that, but I think that is going to be the result. This is going to receive a lot of devotion on our part as to how these things can be used for other purposes.

The next factor is communications, how the varied shelter complex can communicate with each other. Ten is management, extremely important. Eleven is the financing methods, and we are looking at the various ones afforded to us. And twelve is the expansion plan. How can we expand the shelter capability in order to take care of expanding population.

Now, the next sheet shows the shelter complex theory that we are looking at with regard to our city. You will notice that we are thinking right now tentatively about seven of these. These will be strategically located throughout our community. The different colors indicate the neighborhood plan as is reflected in our city's general plan of land use. We are striving to locate these on public grounds, particularly school areas. Not only will this save us the acquisition of land, but also schools are strategically located within the neighborhood patterns and people can get to them with no more than a ten minute walking distance.

The next picture is an architectural rendering of what we would expect to see in a way of a community plan; the ramp coming down from your right would be the means of ingress. You see, it does show it located under a school site with the surface, the protection factor afforded by the poured concrete on the top could be duplicated in the way of playground facilities for school purposes or it could have turfed top.

The next sheet shows the plot plan layout adjacent to a school area. This complex consists of eight modules, as the engineers call them. The design criteria that we are using is twelve square feet per person. This particular series of complexes, I believe, would be able to hold something like 2200 people. This is the program that we are presently engaged in studying. Recently the Alameda County Mayors Conference adopted a report on shelters. Our Mayor was the Chairman of that Committee. That report was filed with the Mayors Conference in September and was unanimously adopted, and it submitted four recommendations. And I can paraphrase them quickly. They were, first, that the state should be urged to consider an incentive type of a program on taxation, both for personal property or exemption on assessed valuation and also from income taxes. Secondly, that the Federal government should be admonished to consider income tax exemptions on the Federal level and also to indicate a much greater degree of participation in the shelter program nationwide and perhaps to devote some financial assistance. Thirdly, that a uniform series of standards should be devised for amendments to building codes which would be simple, clear and concise so that the average citizen can build these things without

seeking through volumes of various types of building standards and we hope uniformly adopted, at least in the county. And, fourth, that the state legislative representatives be urged to consider the construction of public shelters on school properties. The report was unanimously adopted and transmitted to the U.S. Conference of Mayors, the American Municipal Association, and to the League of California Cities. As a follow-up to that, the League has adopted quite a strongly worded resolution embodying the recommendations contained within that report. In conclusion, gentlemen, I would like to read very quickly a list of recommendations which I respectfully submit to you for your consideration, and these are mine, and do not have the sanction of our City Council although I think that they would concur in all of them. Respectfully, the following items are submitted to the Assembly Committee on Public Health for their consideration on matters pertaining to civil defense within the State:

1. It is urged that the Governor be requested to call a special session of the State Legislature on civil defense matters during the forthcoming Budget Session.
2. Since the current advice of leading technicians in the field of civil defense recommends that the community-type fallout shelter is the most efficient and economical as contrasted with the private home shelter design, one logical source by which such a system can be realized is in connection with the public school construction program within the State. One of the primary factors regarding public acceptance for the expenditure of tax dollars to

provide shelter capacity would be that such units could serve dual purposes. Such a goal can be realized if community shelters were properly designed and integrated into school facilities. Amendatory law must be provided, whereby local school jurisdictions would not be penalized from the State financial aid program to local school jurisdictions in the event new school construction incorporates the community shelter theory.

3. Even though authoritative civil defense sources strongly favor the community type shelter design, in some localities such may be impossible to achieve. However, in the interests of impressing the State citizenry with the need of having adequate shelters, an incentive program is warranted. This would incorporate a means by which exemptions can be granted on property assessed valuation, and also an accelerated depreciation rate for deductions on State income taxes. It is submitted that in order to qualify for either of these two types of financial credit, the applicant must be made to satisfy minimum shelter design standards and that the facility would be subject to periodic inspection by either the State or County officials.

4. A problem that is visualized by the City of Livermore is with respect to satisfying shelter capacity for increased community growth. Two alternate means have been discussed on a tentative basis. These are first, an amendment to the State Map Act which would permit those cities that have a

functional community shelter program to require new subdivision installation to incorporate community type shelters to care for the tracts under proposed development as an additional public works installation; and secondly, a State provision which would authorize local jurisdictions that have a functional community type shelter program to assess a specific shelter fee against any residential type structure erected within the jurisdiction. Such a fee would be impounded by the local jurisdiction to be used for providing subsequent shelter capacities.

5. In the interests of uniformity, it may be feasible to consider an amendment to the State Housing Act by listing therein, a brief, concise and clear set of building standards for the construction of private fallout shelters within the State. Such standards would be minimum and can be superseded by jurisdictions desirous of imposing requirements more restrictive in nature. In this regard it may also be feasible for the State to impose a requirement on any firm engaged in the business of selling prefabricated home fallout shelters to meet a minimum standard on the attenuation factor.

6. The State government should make every effort to urge that the Federal government consider the institution at the earliest possible time, of a financial assistance system whereby federal monies can be devoted to local jurisdictions for the construction of community type fallout shelters. Also, the Federal government should

be requested to consider a tax incentive program for the benefit of the citizenry who may wish to install a private shelter and realize some depreciation credits from Federal income tax requirements.

Thank you very much.

CHAIRMAN THELIN: Mr. Parness, would it be possible for these charts which you have shown us to be submitted to us in a reduced scale so that we might include them in our report?

MR. PARNESS: Yes, I have copies.

CHAIRMAN THELIN: If you could do that for us, we would be very grateful. With regard to your anticipated plans, what protection factor are you aiming at?

MR. PARNESS: Our present standard is to include a protection factor of a thousand.

CHAIRMAN THELIN: Now, could you tell us what you are using as a source for the standards that you hope to set for your shelters, etc.

MR. PARNESS: We are relying to a great extent upon a great deal of work and data and statistics that have been compiled by the Naval Radiological Defense Laboratory which, incidentally, did most of their work right in our back yard at Camp Parks. The report that was referred to by my predecessor has been used to a great extent by us as have a lot of additional reports emanating from Federal OCDM officials or offices, and the radiological defense sources.

CHAIRMAN THELIN: Let me ask you this. You are an example, I think, of a very active community in this program. Do you

envision problems arising with, perhaps in the future, the Federal government coming in with standard requirements, or the state? And you are already embarking on a program; now possibly there are going to be conflicts. How do you react to this?

MR. PARNES: Since we have been studying this question or become more and more concerned about civil defense, standards have changed in that interim, as recently as in the past year. I believe it is safe to say a year or two ago OCDM was recommending something to the extent of a protection factor of a hundred, and now they are thinking about the thousand levels. We concede to this; there are bound to be changes in standards and designs. The standards that we are using are in accordance with the present best thinking of experts, not only those from Washington and from the state level, but we also respectfully submit from those people who are local and who have a lot of familiarity with this problem. They might become obsolete. We do not believe so. We think that it will afford decent protection, adequate protection if we are talking about the type of disaster that may occur in the nuclear atmosphere. Now, when you are talking about the type of weapon that has been in the press recently, no, standards may have to be amended then again; but we cannot wait.

CHAIRMAN THELIN: I see. Are there any questions from members of the Committee? Mr. Marks.

ASSEMBLYMAN MARKS: About how much will this program cost?

MR. PARNES: We are anticipating, and this is subject to a lot of amendments later, but our present thinking is that the total program may cost us about two and a half million dollars.

ASSEMBLYMAN MARKS: About what does that figure out per person?

MR. PARNES: We think that we are shooting for something around \$150 a person or slightly under.

ASSEMBLYMAN MARKS: And you obviously feel from your testimony and what you are doing that you should not wait for the Federal government to make its decision as to what should be done in this field?

MR. PARNES: That is correct.

CHAIRMAN THELIN: Are there any further questions? Do you have another statement?

MR. PARNES: Mr. Thelin, with your indulgence, would we be permitted to make just a very brief statement by my Assistant Director of Civil Defense?

CHAIRMAN THELIN: Yes, I was just going to call on Mr. Gaskill.

MR. JAMES R. GASKILL: Thank you, sir.

CHAIRMAN THELIN: State your full name and your position please.

MR. GASKILL: My name is James R. Gaskill. I am employed as an engineer at the Radiation Laboratory, Livermore. However, I am appearing today as Assistant Director of Civil Defense for the City of Livermore on my own time. I should like to make a few preparatory remarks, if I may, before my formal statement. As Mr. Parnes has indicated, we have had a fair amount of publicity, and this has resulted in a number of requests for us to send representatives to various locations in northern California and actually one or two in southern California. We have endeavored

to meet these requests to tell people what we have been doing and pointing out that whatever does not apply should not be used. From these trips, and they amount to about one or two a week, we have received certain impressions, and we suggest that you might find them interesting. There appears to be a particular ground swell of public requests for technical knowledge in the field of radiation protection, bomb protection, war protection, and all of these kinds of things, including what is the civil defense system in our state, our county and our local situation. Moreover, there appears to be a particular ground swell of requests for technical information, not only by state officials and the legislative branch, but also by county and local legislators. We have been asked by a number of City Councilmen in other districts and by county officials for this kind of information. We have found, interestingly enough, the degree of competence or knowledge within various counties and jurisdictions varies considerably. Some places they are pretty well set up and know the answers, and other places they are just beginning to get the idea that something has to be done about it. The third comment I should like to make is that, in my personal opinion, the state should properly set up standards for shelters based on the advice of technical experts to include radiation attenuation factors of the order to a hundred to a thousand. I can justify the thousand readily in the question period if you would like, the blast protection, being optional in certain areas. I personally suggest the state might be ascribed off into certain areas and where a blast seems extremely unlikely that a smaller

figure may be used. And this is not a matter of large economic difference. Such things as ventilation, water supply, sanitation, lighting, and structural stability also might well be included. I suggest further that I think that state legislation may be required to allow schools to conduct civil defense drills without incurring the legal responsibility for the children which I understand is the case until they reach their homes. This is what I have been informed by local school people in regard to drills we have held. They have been oppressed by the fact, as I understand it, that there are certain legal requirements that they have to fulfill. Finally, it might be quite profitable, in view of the comments I have heard here today, the State Legislature or the Assembly or the Senate as the case may be, to have an advisory committee of technical competent persons in this field. And, likewise, it may be appropriate to have such a committee available for local needs since we have been rather hard put to it to fulfill the various invitations. Now, if I may, I should like to give my formal statement. Mr. Chairman: Mr. Parness, our City Manager and Civil Defense Director, has covered the general subject of shelters, to which a few points may be added, mainly for emphasis:

First, without adequate shelter for a community all other protective measures against nuclear warfare, generally classified as civil defense, are likely to be futile.

Second, to be effective in use a shelter program must include competent, trained managers and a good intercommunication system.

Third, a point that has received relatively little attention is the sheltering of farm animals, particularly breeding stock. While complete protection may not be affordable, serious efforts should be made by the State and counties to provide such protection as insurance for future food supplies.

Fourth, even the best shelter system does not solve the questions of post-attack recovery. An adequate civil defense system is required to handle the many problems involved.

There are two areas in the recovery phase to which the Committee may profitably address itself:

First, there is the problem of protecting the population against the effects of lingering radiation in fallout areas. If I may make a parenthetical remark - as you are probably well aware, radiation does not die out completely but it does so in a rather acetic fashion and so that clean-up is necessary. It can be a serious problem unless it is appropriately cleaned up. To accomplish this requires the existence of a competent radiological staff to guide the efforts of other services involved in recovery. Such, for example, as police, fire, street departments and plain citizens. A technician, or for that matter, any citizen can be readily trained to read a meter; but it requires professional knowledge and judgment to evaluate the results and to recommend appropriate courses of action.

For your consideration I suggest that the following kinds of post-attack procedures need to be established ahead of time at all levels of government throughout the State. If they are established already, then the State can assist in their implementation.

One, is the monitoring of important and then progressively less important areas of a community, and forwarding the findings to an evaluation center.

Second, the cleanup by washdown of hard surfaces or removal of about 2" of topsoil of the important, and then the less important areas.

Third, the controlled disposal by isolation methods of radioactive waste waters and contaminated top soil, the use of water-treatment methods to remove the radioactivity from sewage and storm drain wastes by sludging techniques, which, incidentally, are available.

Fourth, maintenance of a careful log of the radiation dosage received by persons whose activities are essential to recovery. Removal of such persons from radiation hazards for a period of time, to permit their useful future employment.

And, fifth, the monitoring, evaluation and proper handling of food, water and other essential supplies. The disposition or cleanup of these items as necessary and feasible.

A second area to which the committee may wish to direct its attention is that of the post-attack medical and health problems. Regardless of the number and kinds of shelters, many people will be injured in a nuclear attack. Others will be at least contaminated, if not irradiated. It is my impression that relatively few physicians and nurses have the practical knowledge and skills to handle the "battle casualty problems" and more particularly radiation sickness. Moreover, the casualty load may be such as to tax the efforts of the medical personnel severely.

I respectfully commend to the Committee the recent recommendations of Dr. Lichter, Chairman of the Civil Defense Committee of the American Medical Association. And, incidentally, he made this at the recent Civil Defense Council Meeting in Los Angeles.

1. That all physicians should be trained in the techniques of triage (which is sorting of the injured); priority handling of injuries; diagnosis and treatment of radiation sickness; and community sanitation methods.
2. A well-established and practiced corps of paramedical personnel should be established in each community to handle disaster-type casualties, under the direction of physicians.
3. Hospital plans should be made or implemented to handle disaster situations and the staffs should be thoroughly indoctrinated in operating procedures.

I suggest that the Committee may usefully consider the broad aspects of the problems outlined in this statement and lend its efforts to the following:

1. The coordination of civil defense legislation relating to post-attack problems in the fields of radiation protection and the handling of casualties as well as community sanitation.
2. Initiation or support of legislation designed to establish or implement radiological defense services at the county and local levels to be coordinated with the same service in the California Disaster Office. By that, I mean it already exists, and similarly with the medical aspect next covered.

3. Initiation or support of legislation designed to establish or implement disaster medical services at local and county levels again consistent with the same service in the California Disaster Office.

CHAIRMAN THELIN: Does that conclude your remarks, Mr. Gaskill?

MR. GASKILL: That does, sir.

CHAIRMAN THELIN: Mr. Gaskill, you bring up the question of the liability of the schools and the defenses for nuclear attack. Is this any different a problem than a school has when the children are on a fire drill, for example?

MR. GASKILL: Yes, sir, I think it is. As I understand the situation, I am not quite certain on this point, but I have been informed by the school authorities that as long as they are on the school grounds and under the jurisdiction of teachers is one thing. However, a portion of our drilling program under the present situation where we have no shelters is to send the children home under a particular set of circumstances when it is safe to do so; and once they leave the school grounds, apparently the school has legal responsibility until they reach their homes unless it is a normal school day. This point has been raised, and I am not quite certain of the legal implications; but if there are problems, I suggest that it might be properly handled at the state level.

CHAIRMAN THELIN: It is something we can look into. I think the Committee would naturally be very reluctant to reduce the responsibility that anybody has for the school children.

MR. GASKILL: This is quite so, sir. But it occurs to me, if I may suggest it, that unless a practice is held realistically as possible, it is likely to not be very useful when the real time comes. We are certainly coordinating our efforts locally with our local city government and the schools, but this question of legal responsibility comes up as a bugaboo every now and again.

CHAIRMAN THELIN: Was this question raised by your local school authorities?

MR. GASKILL: Yes, sir. We had one duck and cover drill about two weeks ago. We anticipate having a send the children home kind of drill the 20th of this month. We are trying to provide appropriate crossing guards from what will essentially be auxiliary policewomen, neighbor women who have been sworn in for this kind of duty. But there is the kind of question raised as to what extent is the school responsible if the children fail to reach home?

CHAIRMAN THELIN: Could you give us the name of the school administrator perhaps who could be contacted by our staff?

MR. GASKILL: Mr. Harold Jenkins, I believe, is the administrative assistant; and he has raised the point of this nature.

CHAIRMAN THELIN: Would you make a note of that. Now, you suggest the creation of a technical advisory committee and also local committees of this nature. What kind of technician are you referring to?

MR. GASKILL: People with approximately the following

kinds of knowledge. First, a reasonably good knowledge of civil defense organization and all its ramifications.

CHAIRMAN THELIN: This is apt to be rather hard to find, isn't it?

MR. GASKILL: It may be so, sir. Secondly, one with a reasonably good knowledge of the effects of nuclear weapons and particularly the radiation question. The point is, sir, that we have found many questions along this kind of route being asked by local legislators, city managers, and committee groups. That kind of information is available in the literature; we have dug it out over a period of years; you have heard two of the literature pieces mentioned here today; we have a list of approximately a dozen or a dozen and a half reports, books, things of this sort, which we have studied over the past several years and which we use as appropriate. This kind of information is available, but as Admiral Cook said, sometimes you have to know a fellow who knows a fellow to find it. We have been fortunate enough to know the right fellows.

CHAIRMAN THELIN: Any questions from members of the Committee? Mr. Marks.

ASSEMBLYMAN MARKS: I was just wondering whether you would care to comment on what part, if any, the family shelter program should play in civil defense, or do you think it does play a part?

MR. GASKILL: In my personal opinion, a family shelter built right now may be a very wise thing to have built, but on the other hand, it does not, to my way of thinking, represent an answer to the problem by any manner of means, for several reasons. In the

first place, there is the question of proper management within the shelter; does the person know how to use that shelter quite properly? Secondly, what do you do about the neighbors who thought you were crazy when you built your shelter and who suddenly decide now to come in? This is the so-called moral and psychological and sociological problem which has raised itself. Thirdly, there is the question of its cost which is fairly high, in my opinion, I would say probably, two to three times as expensive, depending upon how much work you put into it and how much you do not, as the community or even the private group type shelter. And, fourthly, there is another question of use. It is fairly likely that there will be a number of premature child births, appendicitis attacks, heart attacks, things of this sort, which will be brought on by stress. If a person is in a shelter, he cannot obtain the services of a doctor or even a practical nurse, so that, therefore, these kinds of problems will arise. Furthermore, cost again becomes prohibitive if one considers a family that has to have, let us say, refrigerated insulin; and one must therefore by a refrigerator to put in the shelter and stand-by power to operate it and a fuel supply and so on. This can really add to the cost, whereas the cost can be probably picked out of a person's pocket for his share in, let us say, a refrigerator for a hundred person shelter.

ASSEMBLYMAN MARKS: One other question I would like to ask. You stated that it is sometimes difficult to get this literature unless you know somebody who knows somebody. Do you think it would be a good idea to have established some sort of a clearing house

for dissemination of this literature?

MR. GASKILL: I certainly do, sir. We have been sending out- I did not bring it with me today - but we have been sending out to those who have inquired a two-page sheet of literature pertaining to the subject. It covers some of the bibliography in the back of the report of which you have a copy, but there are others as well.

ASSEMBLYMAN MARKS: But if the average citizen wanted to obtain literature, he would have difficulty in obtaining it at the present time?

MR. GASKILL: This is not the literature for the average person.

ASSEMBLYMAN MARKS: I realize that it is the community.

MR. GASKILL: This would depend entirely upon what is done at a local level. Again, I regret I did not bring it with me. We have issued a small civil defense booklet to the people of Livermore; handed it out house to house; the things you should know. We are likewise writing a series of weekly columns in the newspaper in sort of the Aunt Jenny Says type of article, what you should know about civil defense, in an effort to reach all the people. Furthermore, our telephones are available night and day to those who make inquiries. Now, this kind of thing can possibly be done, and I would suggest should be done, in all communities. If there are those communities that cannot afford it, then this is the place where the county and the state possibly can lend a hand because some communities are maybe a little poor for this purpose.

ASSEMBLYMAN MARKS: Thank you very much.

CHAIRMAN THELIN: Any further questions? Apparently not.
Thank you very much.

CHAIRMAN THELIN: Our next witness will be Mr. Will Perry, Jr.
Mr. Perry.

MR. WILL PERRY, JR: Mr. Chairman, gentlemen. My name is Will H. Perry, Jr. I am Director of the Contra Costa County Disaster Office, and the immediate Past Vice President of the United States Civil Defense Council. I am a member of the Governor's California Counties and Cities Civil Defense Advisory Committee. It was my pleasure to testify before this Committee just one week under one year ago in your hearings in Los Angeles. I would like to respectfully direct the Committee's attention to the full text of my testimony at that time in which I discussed the techniques of shelter surveys and the results obtained in our County from such a survey. At that time I made certain recommendations which the Committee saw fit to reprint in their report in total. You reprinted my recommendations. Now, I believe my testimony of a year ago and my recommendations of a year ago are even more current today then they were at that time. Certainly, the dangers that we had at that time have been ever increased since then. I know of nothing in the report or the recommendations at that time that is not current today. My purpose in coming to speak to you on this occasion is to again emphasize the need for action on the recommendations that I have stated there.

We have found in our County that we, through the years,

could not wait for state and Federal leadership. We have long had a strong and active civil defense program. This will continue through the shelter program. We have several community organizations at this time sponsoring petitions, putting out petitions to the public, for both the modified 1911 Act and for the County Extended Services Act. I respectfully direct the Committee's attention to the County Extended Services Act which, in view of point of our County, is a much more practical way of putting in these shelters than the 1911 Act. I would like to also call the Committee's attention, respectfully, to certain things that are the responsibilities, I believe, of jurisdictions with the assistance of the state and perhaps the Federal government.

You have heard much talk about the state setting certain standards for shelters. This, except in a general way, is impossible because different jurisdictions require different sets of standards because of their proximity to target locations. I think, in this case, the setting of standards is the responsibility of the local jurisdiction. It should be guided by the state, but I see no place for state laws. I have here the draft of an ordinance which will probably be passed on next Tuesday afternoon in our county. We long built shelters in our county under our existant codes. This ordinance is to define more clearly in order to prevent the intrusion of the suede shoe operators into our jurisdiction. We have experienced some difficulty; each time we have experienced difficulty, we have overcome it very rapidly. This new ordinance, in addition to setting certain minimum standards, also has a section that

applies to the sale of shelters and misrepresentation of shelters. I have copies of this for the Committee, and I direct your attention specifically to Section 3123 regarding misrepresentation and regarding sale of shelters.

Now, I normally appear before Committees such as this as an anchor man. I enjoy that position because I enjoy answering questions that are in the minds of the Committees. I know you asked several questions earlier that were answered or only partially answered. If the Committee would like to ask me any questions on what I have said so far or anything that has gone on before, I at least will attempt to give my opinions and the opinions of my county.

CHAIRMAN THELIN: Well, I would like to ask you one question, Mr. Perry. How do you feel about the problem of proceeding at the present time with local programs which may not be in conformity with what comes down from the state or the Federal government in the future?

MR. PERRY: If someone can give me the assurance that it will be one, two, five or ten years before we suffer an attack on this country, and that we will have sufficient time to wait for the Federal and the state governments to put some programs into action, I will be very happy to withhold any progress in my county waiting for them. It has long been the history in the civil defense program that this information coming down from the state and Federal governments was much delayed, and most of it came from advanced jurisdictions on the local level that had worked out the problems and provided the solutions to the Federal government.

I speak principally here, and not to glorify my organization, but I describe the mass care manual that was developed in our county and later developed by the state, later taken in and part of it used in the annex to the national plan. The chaplain's service, the format of the service that is used nationwide now started in our county. Maybe we drive a little too much, maybe we are a little too energetic, but we believe in our county and certainly our Board of Supervisors believes that we do not have the time to wait for the Federal government or the state government to bring these programs to a head unless they can give us some indication at this time that there will be sufficient time after they do bring it to a head.

We are progressing, and in that there are certain technicalities involved in both the 1911 Act and in the County Extended Services Act which delay somewhat the fiscal setup, the obtaining of funds, we are recommending to certain groups that approach us that they form non-profit corporations and put in shelters to certain standards that are acceptable to our county and that can be at a later date included into our shelter districts or our extended service areas. Again, I never want to be accused of waiting for Jack to do it, accused of that after the bomb drops.

CHAIRMAN THELIN: Any questions from members of the Committee?
Mr. Marks.

ASSEMBLYMAN MARKS: To what extent, if any, is your disaster office subordinate to or does it work in conjunction with the State Disaster Office?

MR. PERRY: We work very closely with the state office, always have and always will. The same is true with the Federal office, but unfortunately, and this is becoming less true all the time. Certainly, Mr. Jonas has done an excellent job since he has been in office, and the gap is narrowing continually which we are indeed thankful for. We are starting to get the leadership that we want, but we work very closely with them. If we come to a problem for which there is no apparent answer or for some reason the state desires not to make a policy, we go ahead and carry out that program, establish the program, and quite often the State of California agrees with us at a later date. I might mention, we set certain standards here for minimum radiation protection in our county. These are based on fallout protections, best information available not only from my own staff and the people that work with us but also from Stanford Research, Rand and other agencies. We have established certain criteria that are in this ordinance. The state was prepared, I understand, to publish this criteria over a month ago, similar criteria to that that we have used here, but because of divergence of opinion of various advisory councils and committees, this thing is being held in abeyance for goodness only knows how long. That is why we have gone ahead and printed it ourselves.

ASSEMBLYMAN MARKS: I just want to ask you one short question. I know the hour is late, but do you feel that the individual family shelter program should play a part or do you think the entire emphasis should be on the community shelter program?

I have not read your testimony of last year.

MR. PERRY: I refer to my testimony there. The first section is, further encouragement should be given to the construction of home shelters. There is no phase of the shelter program that should be used over any other phase. It is important to get these shelters in, get them in properly, and get them in rapidly. I am somewhat fearful already too late. I have bad dreams on this at night. I am afraid the time is running out on us. I think that any method that we can use to furnish shelter should be used, and any encouragements that can be given, not only to the home owners but to the industrial organizations, the industrial plants and the rest, should be given.

CHAIRMAN THELIN: I guess that is all, Mr. Perry. You have listed a Mr. Joe Connery. Is he going to testify?

MR. PERRY: Apparently Mr. Connery was unable to attend. He was going to speak to you on the County Extended Services Act. Mr. Connery is the staff analyst in our County Administrator's Office. Today, unfortunately, is our board day, and probably he was caught in a crush on special district formation today. I regret that he is not here at this time.

CHAIRMAN THELIN: Thank you very much for your testimony. Oh, excuse me. Do you have a written statement you could file with the Committee?

MR. PERRY: I normally do that, sir, but in that I was referring primarily to my previous testimony to the Committee, I did not prepare a statement at this time. I do have copies of

this proposed ordinance setting certain standards, and especially setting the standards for sale and advertising for sale that I have right here.

CHAIRMAN THELIN: Perhaps you could let us have a copy of that.

MR. PERRY: I have plenty here. By the way, if you would care for another copy of my complete testimony from last year, I do have that.

CHAIRMAN THELIN: We have that, but would you ask Mr. Connery to send us a copy of this proposed ordinance on standard community...

MR. PERRY: The County Extended Services Act, I can give a slight description of this.

CHAIRMAN THELIN: Well, could he send an analysis of it?

MR. PERRY: Yes, sir, we will. We use this Act in providing libraries in our county and library service, and it is commonly known as the Contra Costa County Act in that it was written and developed in our county and put in on the books by our legislators; but we find it is quite a workable Act, and we feel a good one in that it uses a standard ad valorem tax base rather than the base as established by the 1911 Act. So, we will send you an analysis of it.

CHAIRMAN THELIN: We would appreciate that. Thank you very much. Our next witness is Mr. Alex Van Praag. Would you come forward. Would you please begin your testimony by stating your name and your affiliation and representation, if any.

MR. ALEX VAN PRAAG: My name is Alex Van Praag. I am special projects engineer for the Mark Thomas Consulting Engineering

Firm in San Jose, a reserve Army engineer bomb disposal officer, and shelter consultant for the City of Santa Clara. I am speaking today for Mr. Thomas who could not be here. I would like to summarize his statement.

Our office is currently assisting a number of communities. At the present time, it is approaching 20. We call our program the brick pad system. There are certain problems legislatively that arise or may possibly arise, and we are submitting some suggestions for consideration in elimination or resolving of anticipated problems. The point being to assist those communities who at this time, while the matter is somewhat controversial, in allowing those persons who are in favor of proceeding at this time to set up a district incorporating a larger area than that which will be finalized at some later date. Previously today I heard of a city dividing its area in eight-acre grids, and if you will refer to the last page, we have indicated something of a similar nature in what we call a spread type system which would allow possibly a 30 per cent population in a given area to incorporate properties from a larger area at this time. At a later time, the assessment procedure might be transferred, the assessment cost, the access to the shelters, as those people become desirous of these services. We have the opinions of the attorneys Kirkbride and Wilson, some opinions stated by this firm who are experts in the assessment field. I think at this time this is - in the filing of these suggestions, I think this is all we would have to say.

CHAIRMAN THELIN: All right. Thank you very much. Are there any questions from the Committee? Mr. Wolfrum.

ASSEMBLYMAN WOLFRUM: Are you saying that you can limit the right to use the shelter to those people who are assessed for the purpose of building the shelter? Is this the impression I get from this statement?

MR. VAN PRAAG: There have been two opinions, sir. One, the program of Los Altos whereby it is proposed to lease the facilities back to the organization of the district, those people being assessed. There has been conversation on the enacting of legislation within the authority - I am speaking of the City Council or the County Board - setting up an ordinance for each one allowing access only to those persons.

ASSEMBLYMAN WOLFRUM: What I want to know is, who is going to have the job of keeping the guy out?

MR. VAN PRAAG: This would be a legal question. We are engineers.

ASSEMBLYMAN WOLFRUM: I think it goes a little farther than a legal question; I think it would be a moral question and probably half a dozen other questions.

MR. VAN PRAAG: I was going to point out, sir, that in most of the districts I have worked with, I frankly am very much encouraged by the intent of the people. The intent initially, of course, in setting up a district and drawing a boundary and incorporating the entire area is so that all of your neighbors will be allowed together rather than trying to eliminate someone or keep someone out. It was an attempt to avoid the problem of

holding someone out. Their interest seems more in forcing them in than forcing them out, and I am encouraged by this attitude.

CHAIRMAN THELIN: Mr. Marks, do you have any questions? I guess that will be all. Thank you very much. Our next witness is Mr. Harry L. Brown. Mr. Brown, will you come forward please. Well, I guess he is no longer with us. We still have several people who have requested to be heard. I would like to announce that it is the Committee's intention to adjourn at 5:00, so witnesses who testify may govern themselves accordingly please. The next name we have down to testify is Mr. Ernest Lowe. Mr. Lowe, would you come forward please. Mr. Lowe, would you begin by stating your name and affiliation or representation, if any, please.

MR. ERNEST LOWE: My name is Ernest Lowe, and I live in Berkeley. I wish to speak today as the Chairman of the Committee on Civil Defense, a group with members in the East Bay and San Francisco, as a citizen interested in the welfare of my country, and as a father. I am opposed to Civil Defense for a number of practical and moral reasons but I am not here to protest. I wish to deliver testimony which I feel is relevant to this Committee and which you might find helpful to consider in further hearings. This is an aspect of an enemy attack which has to be considered in any defense program.

The American people have been told that they can survive. The gentlemen here today told us that we could survive. Life magazine in its September 15th issue said that 97 out of 100

could be saved by fallout shelters. Time, in a recent issue said that fallout shelters could cut deaths from 180 million to 85 million in the event of a 150 city attack. These people who provide us with these figures, the "hard-headed realists," as they like to call themselves, seem to have become utopians in their study of a future war. I have not heard of one who has put a war through his computer to calculate the megadeaths that might result from an attack which combines biological and chemical weapons with the more conventional nuclear weapons -- when it is clear that any war we might face will probably include all three forms.

Major General William M. Creasy, former Chief Chemical Officer of the U.S. Army testified before the House Committee on Science and Astronautics in 1959: "...the Russians have announced that at the outset of the next war -- this is public information -- that they have every intention of starting with both atomic and chemical warfare. This is stale news. This is news 3 or 4 years old."

And in a report on Chemical, Biological and Radiological Warfare prepared for the Senate Committee on Foreign Relations, Marshal Zhukov, who was Russia's Minister of Defense at the time, is quoted as saying:

"A future war, should it be unleashed, will be characterized by the massive use of air forces, various rocket weapons and various means of mass destruction such as atomic, thermonuclear, chemical and bacteriological weapons."

Major General Marshall Stubbs, who is presently Chief

Chemical Officer of the U.S. Army, has repeatedly described Russian preparations for and willingness to use chemical and biological weapons. Our own forces spent 54 million dollars this year for research and development in this field and it cannot be doubted that the weapons are available on our side and on this side, too.

There is no reason for contradicting these authorities on both sides of the Cold War, who say that an attack on the United States would include chemical and biological weapons. Civil Defense proponents tell us that our ability to survive in shelters -- enabling us to launch a second strike and "win" the war -- this ability is a major deterrent to the Russians. Chemical and biological warfare offers the aggressor the opportunity to make shelters, at one blow, tombs for the occupants.

Information is available only a small part of the chemical and biological arsenal -- the weapons which are generally known and of less efficacy than the newer weapons, the weapons which are described only in secret sessions of Congressional committees. However, what we do know is sufficient to allow a description of this type of warfare. The known chemical arsenal includes some 38 tear, choking, blister, vomiting and blood poisoning gases. These are obsolete gases used in World War II. It also includes the nerve gases -- tabun, sarin and soman -- gasses developed between the wars; the psycho-chemicals which incapacitate but do not necessarily kill, and obviously whatever has been developed in more recent years. The nerve gases are potent weapons -- they are generally colorless, odorless, and

readily absorbable through the lungs, through the eyes and also through the skin and intestinal tract. They are difficult to detect and highly effective. The psychochemicals are weapons which would incapacitate, either physically or mentally, personnel attacked by them. They are mainly thought of as tactical weapons to be used in direct military operations; however, it is certainly conceivable that psychochemicals of sufficient strength could be developed such that an entire population might be paralyzed or rendered psychologically incompetent.

These are the chemicals that we have been told about. What about the new developments? William H. Summerson, Deputy Commander for Scientific Activities of the Research and Development Command, U.S. Army Chemical Corps, has this to say:

"...we cannot afford to ignore the real possibility that even more powerful chemical weapons than the nerve gases remain to be discovered....the chemist knows about and can synthesize lethal chemical compounds which are far more potent than the nerve gases. There is no reason to expect that research will stop at this point; on the contrary, we should not blind ourselves to the real possibility that the nerve gases will become as obsolete in the future as they have rendered obsolete many of the chemical agents of World Wars I & II."

If the 136 million dollars spent by the army chemical corps and Research and Development since 1959 in this country have been used effectively it seems likely that we already have some of

these weapons. There is no reason to doubt that the Russians have them also.

Biological warfare involves the "employment of living organisms, toxic biological products, and chemical plant growth regulators to produce death or casualties in man, animals, or plants..." Some of the diseases proposed as possible agents include the bacteria for anthrax, brucellosis, cholera, glanders, plague, tuberculosis, tularemia and typhoid; the rickettsiae for typhus, Rocky Mountain spotted fever and Q fever; and the viruses for encephalitic diseases, influenza, smallpox, yellow fever, and hepatitis. Research personnel say that the bacteria are "more promising" than the rickettsiae and viruses but probably all three groups can be used in one way or another. Any organisms used as biological weapons will, of course, be highly developed strains, bred for intense infectivity and virulence, and resistance to treatment and immunization. Microbiologists assure us that this selective breeding is easy to achieve.

How would chemical and biological warfare agents be delivered? In warfare the most likely means would be missiles and submarines. These means would dispense with the major restraints on the use of such weapons during World War II -- the possibility of harm to one's own personnel. Experiments conducted by LeRoy D. Fothergill, scientific adviser to the United States Army Biological Warfare Laboratory at Fort Detrick, Maryland, indicate that offshore vessels could disseminate biological warfare weapons over wide areas. In one of his experiments a boat traveling 10 miles offshore distributed an

inert substance by means of an aerosol spray 450 miles inland and over an area of 34,000 square miles. It would be possible to disseminate chemical weapons in the same way, and both types could be spread by missiles or drone planes over inland areas. Given the ingenuity of military science, it is plain that methods can be found, if they have not already been developed, for placing these weapons on any target the enemy wishes to hit.

Once in the area these weapons are said to "seek out" the human target, that is, any person within range will be liable to attack because of the weapons' tendency to fill the atmosphere. One point that is especially relevant to Civil Defense is mentioned by General Creasy, the former Chief of the Army Chemical Corps whom we quoted earlier: "The real point is that practically all of these things (chemical and biological warfare agents) are heavier than air. Therefore, if you go around gearing up our civil defense with underground shelters, to protect against the atomic bomb, and instead of having the atomic bomb, when the guided missile comes over, it has a chemical or biological warhead, instead of saving people you are guaranteeing sure death or sure sickness or whatever effect the particular warhead is designed to produce. As you go underground you must have ventilation... and you simply guarantee, instead of the agent wafting as the wind wants it to waft, it will go down that particular intake you have conveniently arranged and hit your citizens."

Are there defenses against these weapons? Some have been suggested. G.D. Rich, a civil defense official speaking at an American Chemical Society symposium on chemical and biological

warfare, tells of a 'civilian protective mask' with particulate filter pads used at the cheek position. He says that "it provides adequate protection against the inhalation of war gases, biological warfare agents, and air-borne radioactive fallout particles. The design permits ease of breathing, adequate visibility, adequate speech transmission and comfort." These masks will be made in six sizes to fit all persons from 4 years old and up and will cost between 2 and 3 dollars. And I quote here, "for children up to 4 years of age an infant protector has been developed for the OCDM by the Army Chemical Corps. This pup tent-like device has an aluminum frame upon which is fastened a tough vinyl plastic covering with two large filter pads in the rear, similar to that used in the civilian protective mask. There are two panels in front, a filter pad similar to those in the rear and a clear panel window for observation of the child by its parent. The child is placed in the protector through the apron that is rolled up in the front. The apron is unrolled, the top flap is lifted, and the child is placed in it with its food, toys, etc. The two ends of the flap are brought together and then evenly rolled and secured with snaps onto the frame. A shoulder strap is provided for carrying the protector." My child is three years old and I do not think that this would protect her. I think she would rip it to pieces in the terror that she would be in in a case like this.

Fallout shelters themselves could be made shelters against chemical and biological warfare, we are told, by simply making them air tight and providing filtering systems to exclude the

agents. This would double the cost of the "standard basement corner room shelter," which is proposed by the Office of Civil and Defense Mobilization. Ideally a powered system of ventilation should be included to provide a sufficient oxygen supply, but there probably would be no source of power after a nuclear attack.

Other defenses include prior immunization, early detection and warning, washing after exposure -- using plenty of soap and water -- and medical treatment of those exposed.

It should be pointed out that devices such as these can give only relative protection; the degree of effectiveness would depend on many factors. Nowhere could I find a description of just how effective these devices might be. My source just said that they protect. Since they are mentioned in the 1959 hearings on Chemical, Biological and Radiological Warfare, it is evident that they were developed two to three years ago, but they have not yet been put on the market. It is possible that they are already obsolete.

Are these defenses adequate? It depends upon the context -- if you consider each measure in isolation it might be adequate. When you consider these defensive measures in the context of total nuclear-chemical-bacteriological war they become hopelessly inadequate. Take the simple matter of immunization and treatment -- of one list of 55 diseases which might be used as bacteriological warfare agents, only 17 are known to be subject to specific protection either vaccines or medical treatment and this protection only for the common strains. Highly virulent strains of any of

them could be bred which would fail to respond to normal treatment or even overwhelm immunity. Consider the inhabitants of a shelter -- under enormous emotional strain, many would remain in a state of shock for days, they may have suffered skin blistering from the thermal effects of nuclear explosion or cuts from flying debris, in other words, they are in a state of high susceptibility to disease. They do not have enough water to wash thoroughly. Many shelters will have suffered minor damage from the more distant blast effects of bombs -- enough to break the air seal. Their filters and masks may not even work against the particular agents used by the enemy. (One of the principals of Military Research and Development is to devise weapons which will get through the enemies defenses. That this can be done successfully is always a possibility.) All medical facilities will be strained beyond endurance by just the blast and thermal effects of the bombs.

When inhabitants of the shelters come out, assuming they are able to survive to come out, they will find a threatening environment -- many of the bacteriological agents will have found hosts in rodents, insects, and other animals, and the multitude of corpses. Epidemics would be sure to ensue. Weakened by minor cases of radiation sickness the survivors will become even more susceptible to disease. Many sources of food will acquire concentrations of the longer lived sources of radiation -- for example, strontium 90 tends to concentrate in wheat as well as other foods, and certain animals concentrate such radioactive sources in their bodies as they feed upon radioactive plants. The bands of survivors would grow smaller and smaller.

There is a chance that there would be ultimate survival for some members of these bands, perhaps a considerable number. But to consider this the survival of our nations is beneath contempt. This would only be the survival of scattered human beings on the North American Continent.

In the Hearings on Civil Defense which were held before the House Committee on Government Operations in August of this year there are two subject headings --

"Preparations for Unpleasant Facts of Life" and

"Unpleasant Problems Must be Faced."

These hearings took 6 or 7 days and represented testimony by some of the Nation's leading experts on civil defense. Yet the only testimony relative to chemical and biological warfare is found in passing comments on how little we know about the subject.

Who is not facing the unpleasant facts? A fairly thorough study of generally available literature on Civil Defense indicates that chemical and biological warfare is a totally ignored topic. None of the popular magazine articles which have appeared since President Kennedy urged us all to dig holes last summer have mentioned chemical and biological warfare or defenses against it. None of the materials currently available from the Office of Civil and Defense Mobilization discuss these threats, although it is clear from the professional literature of Civil Defense that they are recognized. The Congressional hearings on Civil Defense, which include thousands of pages of testimony and documents similarly neglect the topic of chemical and biological warfare. No masks or infant protectors have been put on the market; people have not

been urged to get immunized. In short, nothing has been done to include protection against chemical and biological warfare in the current public Civil Defense program.

We certainly know enough about chemical and biological weapons to be able to estimate the range of the threat they present and we only know about the tamer varieties. This threat is so overwhelming that once and for all we must accept the premise that it is not possible for this country to survive the type of war that is likely to come. Civil Defense has the same power to resist World War III that an armoured vest would have to resist an artillery shell. If we put our faith in Civil Defense we have found the shabbiest security ever offered man. There is only one type of action that we can take to find security -- action toward peace and disarmament. We must support our President in his search for peace and we must tell him with all the passion at our command that war is no longer survivable.

That is the end of my statement. This is based upon a survey of just about all of the publicly available materials on civil defense.

CHAIRMAN THELIN: Are there any questions for Mr. Lowe? There appear to be none. Thank you very much for appearing. At this is the Chair is going to recognize Assemblyman Wolfrum for a statement that he wishes to make for the record. Mr. Wolfrum.

ASSEMBLYMAN WOLFRUM: Mr. Chairman, it has been brought to my attention that school districts should have the legal authority to permit construction of shelters on school district property. I have been informed that presently they do not have the authority

to permit the construction of shelters on school property either by the school district itself or by any of the various components of local government. I think this subject should be brought to the attention of the Governor for consideration as a special call during the 1962 Budget Session. Thank you very much.

CHAIRMAN THELIN: Thank you, Assemblyman Wolfrum. The next witness will be Mr. Robert Schutz. Mr. Schutz, are you present? Will you come forward please. Mr. Schutz, would you begin your testimony by stating your name and your affiliation, if any, please.

MR. ROBERT R. SCHUTZ: I will, indeed, Chairman Thelin. My name is Robert Schutz, and I represent the Lobby for Peace in Northern California, a group of about 300 individuals who are so concerned about human survival that they are willing to pay me to represent them here, and wherever decisions are made in this matter. I am an economist by profession, but have also served as a weather officer in the U.S. Navy, and have a master's degree in plant genetics. I have taught economics and business administration at the University of California, and was Economist for the Federal Reserve Bank of San Francisco before becoming the Lobby's representative.

Mr. Thelin, I am aware of your statement that we do not want to ask the question whether or not we should have shelters, but I had intended to treat this to some extent in my testimony which I have prepared. It is a short statement, and I do not know if I can extract those portions that do not deal with this.

I wonder if I could just go ahead and read it.

CHAIRMAN THELIN: Well, in that case, we are certainly willing to hear it. I would just remind you of our time limitations, and we do have several others that are going to testify. In view of that, you can make your statement.

MR. SCHUTZ: I realize that. Thank you, Mr. Thelin. We believe that the decision to undertake a shelter program is not prudent, not protective, not even neutral as it is being sold to us, but that it is wrong, dangerous, and disastrous. And here we would document this statement.

A shelter program is wrong if it is morally wrong, and it is wrong if by rational calculation it can be shown that it will lead to disaster. We will show that it is wrong in both senses. The United States of America is the nation that proclaims itself a God-fearing nation. We mint our coins the inscription "In God We Trust;" our Post Office cancels stamps with "Pray for Peace;" our last President interrupted the fine rhythm of the pledge of allegiance to insert "under God" between "indivisible", and "with liberty." If this is not all a sham and we are not a nation of hypocrites, we will do well to listen to the voice of God on the subject of fallout shelters.

God has ordained that we will all die. But He has specifically enjoined us not to kill each other. In the books that Jews and Christians regard as sacred, He has said "Thou shalt not kill." I am appalled to see so-called Christian ministers and priests advise their people to kill neighbors and brothers who would frantically try to get into their full fallout

shelters when the bombs were coming. This is not a Christian response to this situation. The only response that Jesus of Nazareth could give would be to walk out of the shelter and give his place to his neighbor. We can not morally kill neighbor. We can only give our lives for each other.

But suppose we can bring ourselves to act morally with respect to our neighbors. There is another larger question we have to ask about the fallout shelter program, which is this: Does the fallout shelter program help us to kill people -- friends, enemies, anybody -- and there is it wrong? And the answer, I think, is clearly "yes."

Herman Kahn, the Rand Corporation physicist who wrote the book, On Thermonuclear War, regards a shelter program as an offensive weapon. It is hard to see how we can come closer to the brink of national calamity than we already have in the Berlin situation, but we can. And if we had a shelter program, our leaders would go closer to it, and eventually they would step over. If a shelter program that saves a few lives brings on the war that will kill millions, it is wrong.

If we succumb to the temptation to be doing something, and build a lot of fallout shelters that cannot save us, we will almost certainly require the leaders of one side or the other to undertake pre-emptive war. Every calculation by Civil Defense and Army people relies on the assumption of few bombs hitting cities. If a great many bombs hit our cities, there is no question that our cities will be dead. The only way we can insure that only a few bombs hit our cities is if they come in a second strike;

in other words, if we hit the enemy first. This means pre-emptive war. And if the enemy thinks we are going to engage in pre-emptive war when we get our shelters built, his only resource is to undertake pre-emptive war against us first. In any case, the shelter program leads directly to a much greater likelihood of World War III. World War III will kill millions of people; I think it would destroy the entire nation and all we stand for. Therefore, the shelter program is wrong.

On moral grounds the people have no choice. They must oppose the building of shelters.

Most of us, however, are hypocrites, not moralists. We would bargain with God. We don't care how many people we kill if we can save our own skins. So let us calculate, along with the bargainers.. Let us see if shelters help us save our skins.

Our Civil Defense Administrators will admit, if you make them stand still, that everything within 5 miles of ground zero of a 20 Megaton blast would be destroyed, even people in deep shelters. They have to admit that people in subways would be destroyed out to the outermost ends of the system, because winds of thousands of miles an hour would go out those tunnels like chimneys, and they would vaporize and splatter people against the walls and shoot them out the ends like bullets.

Our administrators have to admit that primary radiation would burn people out to 25 miles from such a blast, and blind them to 400 miles, and that a single hydrogen bomb would generate a firestorm that would suck out the oxygen from an area out to 35 miles from the center of the blast, substituting therefor

carbon monoxide, raging winds, and temperatures up to 20,000 degrees.

People in fallout shelters simply would not survive this kind of treatment. These people who would sell us cement and three feet of earth above our heads and cinder block, and -- Lord forgive them -- plywood, are engaged in fabricating tissue paper, and the tissue is made of lies.

But, as I say, the honest administrators will admit, if you pin them down, that fallout shelters would be no protection in the vicinity of a blast. They rely on the hope and make the assumption that many of our people would be far enough away from blast to profit from their fallout shelters. If the enemy has few bombs for cities, this would even be true for cities. But we make our weapons invulnerable by hiding them on Polaris submarines and by flying them around continuously in airplanes. The enemy has no way of threatening us, credibly, except by training his missiles on our cities.

If we think we can beat an enemy to a pre-emptive war, even if we become willing to undertake this moral atrocity beside which every atrocity ever committed by man would pale to insignificance, then we underestimate the efficiency of his spy system. If we think the enemy has not enough bombs now to accomplish our destruction, we have only to wait a few years. He can make any number he wants.

I am convinced that if we have World War III, our cities will be destroyed. Realistic military planners have already written them off.

A mathematical physicist, like Herman Kahn, suggests that we 'can recover, as a nation, with 60 million dead, and with all our cities gone. I tell you, gentlemen, that this is hogwash. In spite of all the plans you can make for hiding records and storing wheat and hiding wornout currency, and re-establishing communications and trade and manufacturing and transport under military rule, you would be mistaken and defeated by factors you cannot now foresee. Those who were left to crawl out of their shelters 2 weeks after Holocaust Day would die later, in misery and despair, envying those who died by blast.

On a moral basis, then, fallout shelters are wrong. On a calculating, rational basis, fallout shelters will bring on and encourage the destruction of our nation. World War III is not inevitable. Fallout shelters will tend to make it so, and therefore a shelter program will be partly responsible for our complete demise as a nation and as a way of life, if we build them. They are costly, they commit us to a known defense which an intelligent enemy can use to his own advantage, they cannot provide for the poor and the weak, they are a miserable prelude to disaster, they are an admission of defeat, they provide no way for an honorable man to die.

We, a goodly number of the people of the United States, will oppose the effort to impose a fallout shelter program on us to the limit of our strength and our resources. We understand that a special session of the Legislature is being called to consider ways of implementing a shelter program in 1962. We would appeal to you, gentlemen, to defeat this program with a resounding roar of disapproval and non-participation. Thank you.

CHAIRMAN THELIN: Does that conclude your remarks?

MR. SCHUTZ: That concludes my statement, sir.

CHAIRMAN THELIN: Are there any questions? Mr. Marks has a question.

ASSEMBLYMAN MARKS: In the limited time that we have, I would like to ask you one question. How will you prevail upon our potential enemies not to make war upon us?

MR. SCHUTZ: I think that at the moment the population of the world are three billion hostages to the weapons and that they will not be able to attack us as long as we remain so. But if we become what we think is protected and if we get into our shelters which is an offensive device, then they will feel they have to attack us. It will be a pre-emptive situation.

ASSEMBLYMAN MARKS: In other words, you are saying that if we are less protected, we have less chance of war?

MR. SCHUTZ: That is right.

ASSEMBLYMAN MARKS: Less protected, less chance of war.

MR. SCHUTZ: That is right. That is true.

ASSEMBLYMAN MARKS: You feel that our potential enemies would agree with that?

MR. SCHUTZ: Well, I think that we have proved this so far.

ASSEMBLYMAN MARKS: Have we proved it by being....

MR. SCHUTZ: We are practically unprotected. Every one of these witnesses...

ASSEMBLYMAN MARKS: Are we unprotected with these kind of weapons: are we unprotected with Polar's missiles.

MR. SCHUTZ: We are unprotected with shelters; that is what I am saying.

ASSEMBLYMAN MARKS: To follow up your analogy, wouldn't it be better if we just did not have any Polaris missiles, any SAC bombers flying overhead, and any Army or any Navy? Wouldn't it be better to have no Army and no Navy and...

MR. SCHUTZ: It might be, but I have not made that argument, and I am not making that argument here. I am saying...

ASSEMBLYMAN MARKS: Doesn't that follow?

MR. SCHUTZ: No, not necessarily. I am saying that the fallout shelter itself is dangerous because it invites and almost requires a pre-emptive attack by the enemy. These other weapons have not so far done this. It is possible that they might at any time if we get to a situation where they felt they had to attack in order to preserve their futures.

ASSEMBLYMAN MARKS: In other words, you do agree that certain military protection lessens the chance of war?

MR. SCHUTZ: I do.

ASSEMBLYMAN MARKS: Are you familiar...

MR. SCHUTZ: Wait a minute. I think I agreed too soon. Certain military protection lessens the chance of war? This may be possible; I cannot tell what you have in mind.

ASSEMBLYMAN MARKS: I am talking about Polaris missiles, SAC bombers, Armies, Navies, military...

MR. SCHUTZ: They may. This would require, I think, an extended discussion to determine whether or not they would in fact.

ASSEMBLYMAN MARKS: Are you familiar with the testimony or the statements of Dr. Teller, Dr. Edward Teller...

MR. SCHUTZ: Yes, I am.

ASSEMBLYMAN MARKS: You disagree with him, I presume?

MR. SCHUTZ: I certainly do.

ASSEMBLYMAN MARKS: Do you feel that he is not an authority on this subject?

MR. SCHUTZ: I feel he is not; in fact, I think he is dead wrong. It is possible for any of us to be wrong, you know, especially when we get out of our own fields as he is.

CHAIRMAN THELIN: Just a moment. Are there any further questions? Apparently not. Could we have a copy of your statement?

MR. SCHUTZ: I can give you one for each member.

CHAIRMAN THELIN: Well, we need one for our record. If you want to give us each one, we will be happy to receive that.

MR. SCHUTZ: Thank you.

CHAIRMAN THELIN: Thank you, Mr. Schutz. Our next witness is Mr. Henry Lohmann. Is he present? Will you come forward, sir. Would you sit down so you can speak into the mike, sir, so we can get it for the record.

MR. HENRY LOHMANN: Yes. I am Henry Lohmann, Executive Secretary of the Friends Committee on Legislation for Northern California. I was wondering, there is another member of the Friends Committee on Legislation who requested a chance to appear...

CHAIRMAN THELIN: That is Mr. Seaver?

MR. LOHMANN: No, this is Elaine Schwartz.

CHAIRMAN THELIN: Yes, we have her down later among...

MR. LOHMANN: And I will cut down my testimony if she would also then get a chance to appear.

CHAIRMAN THELIN: Well, I will tell you, we just have 15 minutes, and she is at the bottom of our list, so do you want us to substitute her for you? We can do that, but I do not want to take her out of order otherwise in fairness to the other people who have also asked to appear.

MR. LOHMANN: Well, since I have my testimony written out..

CHAIRMAN THELIN: Do you just want to file it with us?

MR. LOHMANN: Why don't I file that with you and... trade places, and if I get a chance at the end, well, good.

CHAIRMAN THELIN: All right, sir. Fine. Sergeant, do you want to take the written statement from Mr. Lohmann. Mrs. Schwartz.

MRS. ELAINE W. SCHWARTZ: Chairman Thelin and Committee members. We all feel such a sense of urgency and the relentless pressure of time that I must beg your indulgence in hearing the quavering and emotion-filled voice of one who is uncomfortable at being here, but who cannot be otherwise. Because we may truly have so little time I feel we must take the time before it is too late to consider the monstrous enormity in which we are involved, rather than to consider merely how to coordinate and facilitate the final human experiment.

Though I know I do not speak for all women, I assume that for many women our basic reality lies within the relationships of our families. We would prefer to make doll clothes with our little girls than to button-hole legislators; we would prefer to plant daffodil bulbs than to put up posters; we would prefer the myriad creative acts of being women, wives, and mothers than the

acts of protests as individuals or as committee member.

We, and again I feel I speak for many women, realize that our lives and those of our children are irrevocably bound with the fate of all mankind. We know there is no real protection from nuclear war, only the assurance that we can kill back those who fear us as we fear them. And because nuclear war would not limit its effects to the contestant nations alone, it would involve those millions who have had no voice in their own extermination. We want no part of mutual suicide and murder for war can now have no other definition.

While I cannot condemn the individual family which in its fear seeks protection in some tangible way, accepting false security as better than none, I cannot be silent when responsible arms of government attempt to persuade the people that this cruel hoax of underground tombs is their answer to personal survival. Jingles on the radio and spot announcements on T.V. now attempt to sell survival as Madison Avenue attempts to sell toothpaste and deoderants. It is an ugly thing that we may be willing to cooperate with.

Within the context of the whole mad arms race, a massive shelter program has many dangers. It means that we will have accepted that nuclear war, only so recently described as "un-thinkable", is thinkable and survivable. Fooled with figures like "97% can survive", Americans will support policies of blustering our way instead of dealing with the realities. It heightens the danger of pre-emptive war, a euphemism for "starting it first". Our very vocabulary reveals how far we have come so quickly away from human values. It means we have lost faith

that our American ideals and institutions are sufficient to a competition with Communism.

We may well destroy what we seek to defend without the help of an external enemy. Democracy cannot survive in a garrison state or a sheltered state. We find too many willing to "defend our freedoms" but unwilling to define them or to exercise them. My faith in the United States will be restored when we begin to address ourselves to the viability of our ideals rather than the deadliness of our bombs. If we begin a shelter program in this country, I will lose what little hope I have left that we may yet find our way out of this valley of the shadow of death.

I do not know if one who has not been a parent can know the desperate longing for life that you feel when you have children. My 11 year old who is saving his money wonders if he will ever have the chance to have a 10 geared jump chain bike. My 9 year old who wakes with bad dreams; how can I assure her that it is not a nightmare world that she lives in? Our 6 year old asks if its only the Russians who drop bombs? Only our 4 year old lives in absolute innocence as he says "When I'm a daddy I'll be an artist and a farmer and a doctor and build houses too!" I will not betray the hopes I yet have for my children by cooperating with a civil defense program which denies the value of all life, denies the values of our society, and which denies our connectedness with the whole human community. No country is an island, we are part of the whole. My husband and I have not acted with courage by refusing to pay for the insanity and

immorality of an arms race, but we have agreed that here and now we will make our stand. We will in no way cooperate with a civil defense program and we pray that we have not found our resolve too late.

I thank you.

CHAIRMAN THELIN: Are there any questions for Mrs. Schwartz? There being no questions, Mrs. Schwartz, thank you for your testimony. Do you have a copy of your statement you could file with us please?

MRS. SCHWARTZ: I do.

CHAIRMAN THELIN: The next witness will be Mr. Ben Seaver. Is he present? Mr. Seaver, would you begin by stating your name and your affiliation please.

MR. BEN SEAVER: My name is Ben Seaver, and I am the Peace Education Secretary of the American Friends Service Committee, Northern California Office. Those of you who know something about our organization I think will realize that we have been very active in helping victims of war since the First World War, and I think our record speaks for itself. I think that we are not opposed to civil defense on the grounds that we are not interested in helping people. We are concerned, we are forced by what we do find to be the facts in the case to argue very much as Bob Kennedy argued, that civil defense does not help people out there as much; and I would say to this Committee that by the very arguments of the very people who are now pushing civil defense, this is true, because only a year ago these same people were pushing what they called the stabilized deterrent.

and the argument for the stabilized deterrent was on the basis of that things were too invulnerable and people who were vulnerable. This made for a stabilized situation said Herman Kahn our scientist. Now, if you try to introduce invulnerable people as well as invulnerable weapons, you introduce an unstabilizing effect; and when you realize that it is not only you who is going to do it but your opponent is going to follow suit, you realize what their argument is based on.

I am not going to read my statement; I have it here, and I will give it to you. But I would like to make a few remarks on the basis of what I heard here today and my own experience in this field. I heard a great deal of testimony here today that was based on the studies made at the Naval Radiological Research laboratory. I have talked personally to Captain Roth who is head of that work. I heard him at a public meeting describe the pieces on which their studies were made, and the basis on which their studies were made was a 1500 megaton attack. This, in the face of the fact that people like Ralph Lapp claim that we have 30,000 megatons to commit to such an attack. And when someone in the audience asked Captain Roth, "what happens if your attack is ten times as great?" Captain Roth said first, "well, we do not think Russia has the capability of launching such an attack". And when the man said, "they could have by the time we had our civil defense built, couldn't they?" He said, "yes, they could." "Well", he said, "tell us what would happen if it was ten times as great." Captain Roth's statement was, "I think there are some studies in that field, but they are all

classified." Now, this is the kind of thing that we run into in this field when we try to study it when we try to make up our minds on the basis of facts.

Captain Roth may be right that there are studies in this field that are classified, but there are other studies that are not classified, and they say some of the things that we are talking about. They indicate that this civil defense program that is being sold is being sold on a fake basis, on a flim-flam basis; it is being sold on the basis that the attack is going to be relatively light and that you are going to have adequate warning time to get into the shelters. And you do not have to take my word for it; get Herman Kahn's book on thermonuclear war in which he makes the typical statement in this field. These are statements coming from scientists, mind you. He makes this kind of a statement - "If we have a complete civil defense system and adequate warning and a relatively light Soviet strike, casualties can be kept in the area of three to seven million." Now, this is absolutely meaningless. What does he mean by a complete civil defense system? Is it the Kahn system we are talking about? Obviously that is not complete. Does he mean that we are going to spend two billion or twenty billion, or what is he talking about? Maybe he is talking about Roger Cannell's plan to spend a trillion dollars. What does he mean by adequate warning time? Is it measured in weeks or days or hours? And what is the chance of getting adequate warning time? And what does he mean by a relatively light strike? Is it 500 megaton, is it this 1500 megaton they are talking about? And is it confined only to airfields and missile bases

avoiding very carefully any industrial or population complex?
And why should it be relatively light?

I do not like to act suspicious or cynical or imply nefarious plots on the part of some people, but the only situation in which you can get these terms satisfactorily, that is, adequate warning time and a relatively light strike, the possibility of a relatively light strike, is to strike first. Then you have adequate warning time maybe, and then maybe if you are very effective, you have a relatively light second strike. In other words, this kind of program could very well be the cause of freeing the government's hand for this purpose. You must consider that every armament element is copied by the enemy, that if you do something, the enemy tries to outdo you in the same field. And the Russians have not gone in for such full-scale program. If we go in for one, they are bound to do the same thing. Consider what the effect is going to be in unstabilizing the situation in putting the people who are in charge of your military defense in a completely impossible position because they will begin to be faced by the fact that if they permit the enemy to strike first, they are done; if they strike first, they have a chance of surviving. What do you expect them to do in those circumstances? This is the reason why the complete immorality of putting any man in the position where he has to make that kind of a decision is the reason why we oppose this kind of an act.

You do not have to make surmises. Look at what has been happening to us in this scramble for personal safety. You are all aware of the talk in Nevada about 5,000 militia to make sure they

are not overrun by refugees from California. You are all aware that Bakersfield had a meeting and declared that their police were expendable and that they would have roadblocks to turn Los Angeles refugees into the Mojave Desert so they would not overrun Bakersfield. You are all aware of the quite serious advice to the individual householder to include in his fallout shelter kit a gun to protect himself against his neighbors. What happens to the values we are defending in this kind of a wild scramble? What is it we are preparing to defend?

In other words, if you make the fatal mistake of moving on and on in this direction of an arms race, and this is what it is, this is another step in the arms race, stepping up the speed of the arms race, if you make this kind of a mistake, you have no alternative but to continue to break your community until you and every other single individual is a kind of a lone wolf in a hostile world. The salvation of man is not in that direction; the salvation of man is in the other direction, in the direction of more and more inclusive community; and this is the way we ought to be putting our money and our time and our energy and not into crawling into holes. Thank you.

CHAIRMAN THELIN: Thank you, Mr. Seaver. Are there any questions for Mr. Seaver? Mr. Marks.

ASSEMBLYMAN MARKS: I just have one comment. I have a lot of respect for your organization. I think you are sincere, and I say it to the other gentleman who testified and the lady. Hasn't our country made efforts to try to cut down the arms race? Haven't we made - maybe not enough - but haven't we made more

efforts than those who are our potential enemy?

MR. SEAVER: Let me just say to the Committee that up to 1955 there seemed to be all the evidence that we were making the efforts for total disarmament and the Russians were obstacles. May 1955 the Russians came into the UN and said, we are now prepared to negotiate on the basis of your offer, and at that point we withdrew our offer, and since then, you cannot say, unfortunately, that we have been making all the efforts for disarmament; we have not. We have been backing away.

ASSEMBLYMAN MARKS: We have made...

MR. SEAVER: No, we have not really made any since then, any that we had the slightest notion might succeed. As a matter of fact, if you look at the record, there is a kind of a dance been going on so that neither side landed in the same place at the same time - that both sides never land in the same place at the same time. If you look at the record, we occupy in some periods the position that the Russians occupied two years before, and vice versa. They keep shifting back and forth. I do not want to surmise why this is so, but I do state that the President - by his speech before the UN on September 25th, gave us a tremendous lead in this direction. And all I say is that this kind of a program goes in the opposite direction, and you cannot do both. You cannot increase the speed of the arms race and move towards a world peace under disarmament in the UN.

ASSEMBLYMAN MARKS: Well, if we had more time, I could discuss it.

CHAIRMAN THELIN: Mr. Rumford has a question for you.

ASSEMBLYMAN RUMFORD: Just one question. Did I understand you to say that if we, if this country takes the impetus as far as shelter is concerned, that we would be taking the lead in that direction?

MR. SEAVER: Yes, I do.

ASSEMBLYMAN RUMFORD: How do you make such a ...

MR. SEAVER: The Russians have no modern shelter program at all.

ASSEMBLYMAN RUMFORD: How do you know this?

MR. SEAVER: I know this from a Congressional report that was published in 1958 and a renewal of this statement in the last hearings in 1961. What the Russians have had was a program of training for all adults, a compulsory program, 40 hours of civil defense training for all adults; and I think a million people they say have gone through this. But if you read what they are trained to do, you will realize how ridiculous this is in the light of what a thermonuclear war would be. You saw the latest one about scrubbing the family pig. In other words, up to this point, officially they have made no attempt to protect themselves by civil defense in shelters any more than we have. We have got a few things here and there, but that is all.

ASSEMBLYMAN RUMFORD: I just wanted to know where you got your information.

MR. SEAVER: Well, I can get you that information, Mr. Rumford, if you would care. I will send it to you.

ASSEMBLYMAN RUMFORD: We might hold you to that.

MR. SEAVER: Right. And I would also like to submit to the Committee, if you do not already have it, this copy of, in the Congressional Record, of the Honorable William Fitts Ryan of New York's speech on the subject.

CHAIRMAN THELIN: And we want a copy of your testimony, too. Well, there being no further questions, I think that concludes your testimony, Mr. Seaver. Thank you. This concludes the meeting; we are now adjourned.